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UK METEOROLOGICAL OFFICE GLOBAL DATA MONITORING REPORT

September, 95

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12 UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 ms^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14.. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 m s^{-1} (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
CZ9742	ALL	MSLP	SUR	41	37	90	3.1	-12.2	12.6
C6FA6	ALL	MSLP	SUR	37	0	0	1.1	-6.3	6.4
C6JT	ALL	MSLP	SUR	52	0	0	1.4	-4.0	4.2
C6JV4	ALL	MSLP	SUR	31	0	0	1.1	4.3	4.5
DNJS	ALL	MSLP	SUR	20	0	0	1.3	-7.9	8.0
D5NE	ALL	MSLP	SUR	33	0	0	1.6	6.4	6.6
ELIU2	ALL	MSLP	SUR	21	0	0	0.8	5.8	5.9
ELQF4	ALL	MSLP	SUR	20	0	0	3.0	-5.5	6.3
FNNO	ALL	MSLP	SUR	23	1	4	2.1	-4.1	4.6
KXDB	ALL	MSLP	SUR	34	2	6	1.4	-11.4	11.5
LACF4	ALL	MSLP	SUR	95	0	0	1.4	-4.7	4.9
LADN4	ALL	MSLP	SUR	36	0	0	5.3	-4.7	7.1
OZBL2	ALL	MSLP	SUR	55	0	0	1.0	7.1	7.1
P3XM4	ALL	MSLP	SUR	54	1	2	1.4	-4.8	5.0
UDYO	ALL	MSLP	SUR	47	13	28	5.9	-6.9	9.1
UKGT	ALL	MSLP	SUR	24	0	0	4.5	-7.3	8.6
USNN	ALL	MSLP	SUR	62	0	0	1.2	-5.6	5.7
VCQL	ALL	MSLP	SUR	33	0	0	1.9	-6.1	6.4
VGVR	ALL	MSLP	SUR	21	1	5	1.2	4.3	4.5
VSBT2	ALL	MSLP	SUR	26	0	0	1.0	-10.1	10.2
WCB5820	ALL	MSLP	SUR	55	1	2	2.5	8.5	8.8
YJWZ7	ALL	MSLP	SUR	50	0	0	1.0	-6.7	6.7
3EAY5	ALL	MSLP	SUR	20	0	0	1.0	-5.3	5.4
3ESE9	ALL	MSLP	SUR	44	0	0	1.2	5.8	5.9
3EWK9	ALL	MSLP	SUR	23	0	0	0.9	6.3	6.3
3FLS2	ALL	MSLP	SUR	36	0	0	1.1	-10.1	10.1
WIND SPEED									
DVFS	ALL	SPEED	SUR	23	0	0	2.4	-6.2	6.7
ELLE9	ALL	SPEED	SUR	25	0	0	5.6	6.1	8.3
ELMF9	ALL	SPEED	SUR	110	0	0	3.1	5.9	6.7
HSGX	ALL	SPEED	SUR	29	0	0	6.6	10.8	12.6
OUSE6	ALL	SPEED	SUR	37	1	3	4.2	6.0	7.3
P3LE5	ALL	SPEED	SUR	32	0	0	4.5	-5.7	7.3
P3XM4	ALL	SPEED	SUR	51	0	0	3.2	6.9	7.6
46054	ALL	SPEED	SUR	119	0	0	3.1	5.3	6.1
9KKF	ALL	SPEED	SUR	40	2	5	6.1	7.9	10.0
WIND DIRECTION									
CG2614	ALL	DIRN.	SUR	44	0	0	43.9	30.7	53.5
C6JV4	ALL	DIRN.	SUR	23	0	0	38.3	-32.1	50.0
C6LF8	ALL	DIRN.	SUR	26	0	0	81.1	-15.8	82.7
DGCR	ALL	DIRN.	SUR	29	0	0	32.1	33.0	46.0
ELLE9	ALL	DIRN.	SUR	25	0	0	44.6	32.4	55.1
FHQL	ALL	DIRN.	SUR	125	0	0	60.8	-42.3	74.1
3EZL3	ALL	DIRN.	SUR	24	0	0	57.2	44.7	72.6
43301	ALL	DIRN.	SUR	60	0	0	41.2	-49.2	64.2
44013	ALL	DIRN.	SUR	70	0	0	24.9	-32.6	41.0
46027	ALL	DIRN.	SUR	30	0	0	51.5	-37.7	63.8
46053	ALL	DIRN.	SUR	54	0	0	35.2	-47.9	59.5
46146	ALL	DIRN.	SUR	49	0	0	82.3	-24.7	85.9
51006	ALL	DIRN.	SUR	29	0	0	83.0	18.2	85.0
51308	ALL	DIRN.	SUR	40	0	0	44.8	-84.4	95.5
52002	ALL	DIRN.	SUR	69	0	0	20.4	-32.5	38.4
62150	ALL	DIRN.	SUR	26	0	0	29.4	33.9	44.9
9KKY	ALL	DIRN.	SUR	45	0	0	67.9	-31.8	75.0
9VDR	ALL	DIRN.	SUR	27	0	0	53.3	30.3	61.3

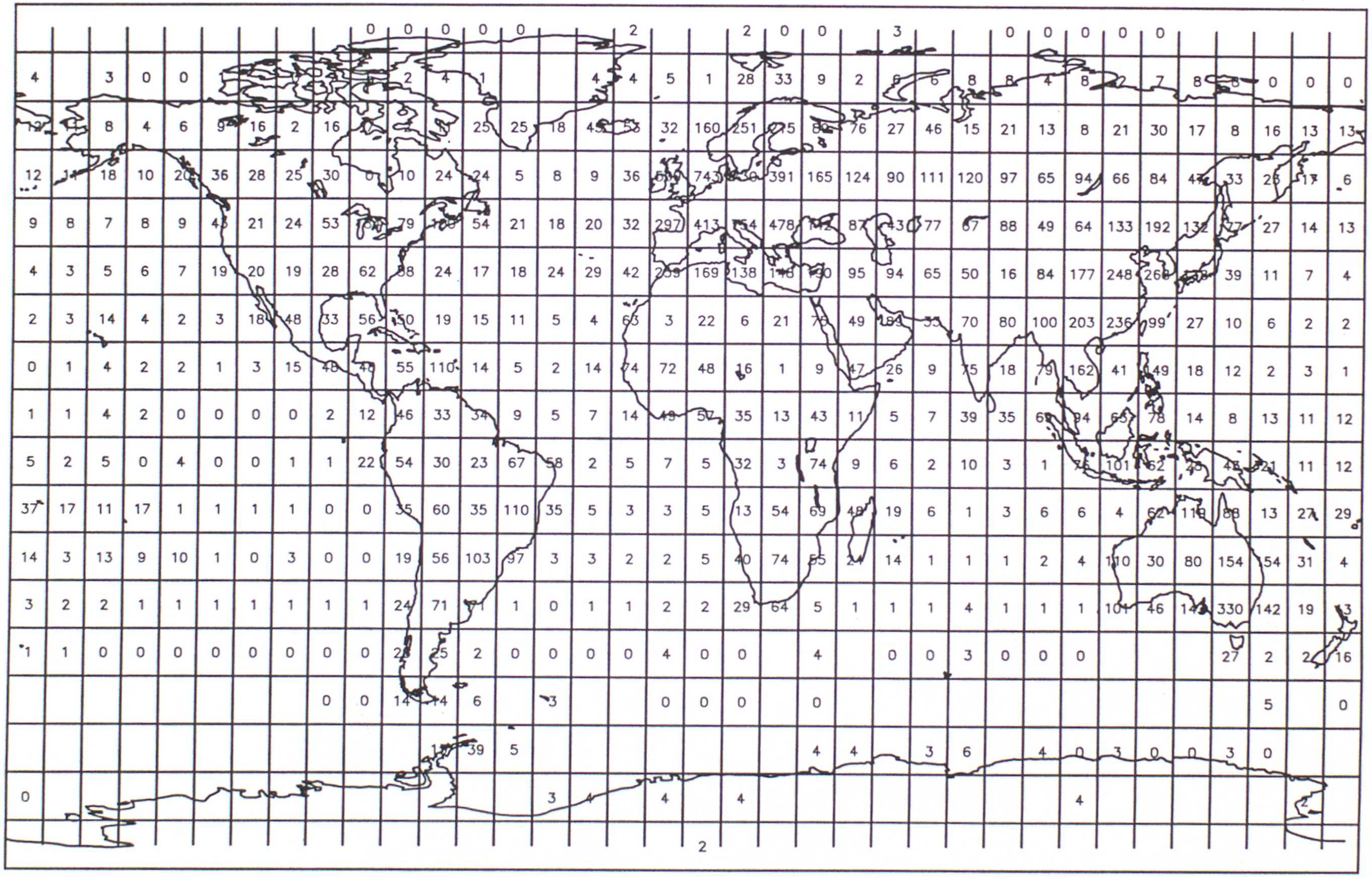
AVAILABILITY – SHIP/SYNOP – SEPTEMBER 1995

FIGURE 1

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 19464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12 14 18 10 20 36 28 25 30 0 10 24 24 5 8 9 36 630 743 630 391 165 124 90 111 120 97 65 94 66 84 47 33 26 17 6
9 8 7 8 9 43 21 24 53 180 79 109 54 21 18 20 32 297 413 754 478 142 87 43 77 67 88 49 64 133 192 132 77 27 14 13
4 3 5 6 7 19 20 19 28 62 38 24 17 18 24 29 42 209 169 138 148 190 95 94 65 50 16 84 177 248 268 138 39 11 7 4
2 3 14 4 2 3 18 48 33 56 150 19 15 11 5 4 63 3 22 6 21 70 49 183 33 70 80 100 203 236 99 27 10 6 2 2
0 1 4 2 2 1 3 15 48 48 55 110 14 5 2 14 74 72 48 16 1 9 47 26 9 75 18 79 162 41 49 18 12 2 3 1
1 1 4 2 0 0 0 0 2 12 46 33 34 9 5 7 14 49 57 35 13 43 11 5 7 39 35 69 94 65 78 14 8 13 11 12
5 2 5 0 4 0 0 1 1 22 54 30 23 67 58 2 5 7 5 32 3 74 9 6 2 10 3 1 75 101 62 48 45 21 11 12
37 17 11 17 1 1 1 1 0 0 35 60 35 110 35 5 3 3 5 13 54 69 48 19 6 1 3 6 6 4 62 119 88 13 27 29
14 3 13 9 10 1 0 3 0 0 19 56 103 97 3 3 2 2 5 40 74 55 24 14 1 1 1 2 4 110 30 80 154 54 31 4
3 2 2 1 1 1 1 1 1 1 24 71 71 1 0 1 1 2 2 29 64 5 1 1 1 4 1 1 1 101 46 143 330 142 19 13
1 1 0 0 0 0 0 0 0 0 28 25 2 0 0 0 0 4 0 0 4 0 0 3 0 0 0 27 2 2 16
0 0 14 14 6 3 0 0 0 0 5 0
17 39 5 4 4 3 6 4 0 3 0 0 3 0
0 3 4 4 4 4 2
2

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA :NOBS $\geq$ 20 , and one or more of the following:

1.|bias| $\geq$ 4 hPa (pressure),
$\geq$ 5 m s^{-1} (wind speed),
$\geq$ 30 degrees (direction).

2.SD $\geq$ 6 hPa (pressure),
$\geq$ 80 degrees (direction).

3.PGE $\geq$ 25.

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
16937	-34.4	71.9	ALL	MSLP	SUR	97	2	2	6.5	0.2	6.5
16947	-41.2	111.3	ALL	MSLP	SUR	267	37	14	7.2	0.1	7.2
17604	-30.5	137.0	ALL	MSLP	SUR	201	109	54	3.0	10.0	10.5
17608	-45.9	9.2	ALL	MSLP	SUR	594	214	36	6.8	3.8	7.8
41582	31.1	-67.6	ALL	MSLP	SUR	42	25	60	6.6	-4.7	8.1
41587	29.6	-69.4	ALL	MSLP	SUR	81	0	0	1.0	-11.1	11.1
41590	30.8	-67.2	ALL	MSLP	SUR	73	0	0	1.0	-10.9	10.9
41591	31.9	-67.0	ALL	MSLP	SUR	163	5	3	1.4	-10.6	10.7
56917	-56.0	134.6	ALL	MSLP	SUR	83	83	100	0.0	0.0	0.0
56918	-54.1	130.4	ALL	MSLP	SUR	78	32	41	3.2	-4.1	5.2
62696	71.1	24.1	ALL	MSLP	SUR	45	15	33	0.6	-0.9	1.1
WIND SPEED											
44616	58.4	-34.6	ALL	SPEED	SUR	511	0	0	5.6	-10.7	12.1
46657	46.9	-143.2	ALL	SPEED	SUR	124	0	0	1.9	-6.1	6.4
WIND DIRECTION											
41518	31.4	-69.7	ALL	DIRN.	SUR	62	1	2	103.2	72.3	126.0
41529	29.8	-70.0	ALL	DIRN.	SUR	22	0	0	34.3	50.8	61.3
41585	29.5	-69.4	ALL	DIRN.	SUR	41	0	0	89.7	-4.7	89.8
44616	58.4	-34.6	ALL	DIRN.	SUR	425	0	0	81.2	75.5	110.9
46657	46.9	-143.2	ALL	DIRN.	SUR	80	0	0	132.4	-30.6	135.9
52643	9.1	142.3	ALL	DIRN.	SUR	83	0	0	86.7	-34.3	93.2
52645	8.5	139.4	ALL	DIRN.	SUR	85	0	0	70.9	-67.0	97.5
52647	12.0	142.0	ALL	DIRN.	SUR	83	0	0	48.7	-48.0	68.4
52649	15.8	143.2	ALL	DIRN.	SUR	85	0	0	15.1	-53.8	55.9
52651	16.6	142.3	ALL	DIRN.	SUR	86	0	0	23.6	-57.5	62.2
52652	16.1	139.9	ALL	DIRN.	SUR	86	0	0	30.1	-56.2	63.7
52653	12.6	139.4	ALL	DIRN.	SUR	84	0	0	37.6	-57.2	68.5
52654	22.2	147.7	ALL	DIRN.	SUR	88	0	0	25.1	-62.1	67.0

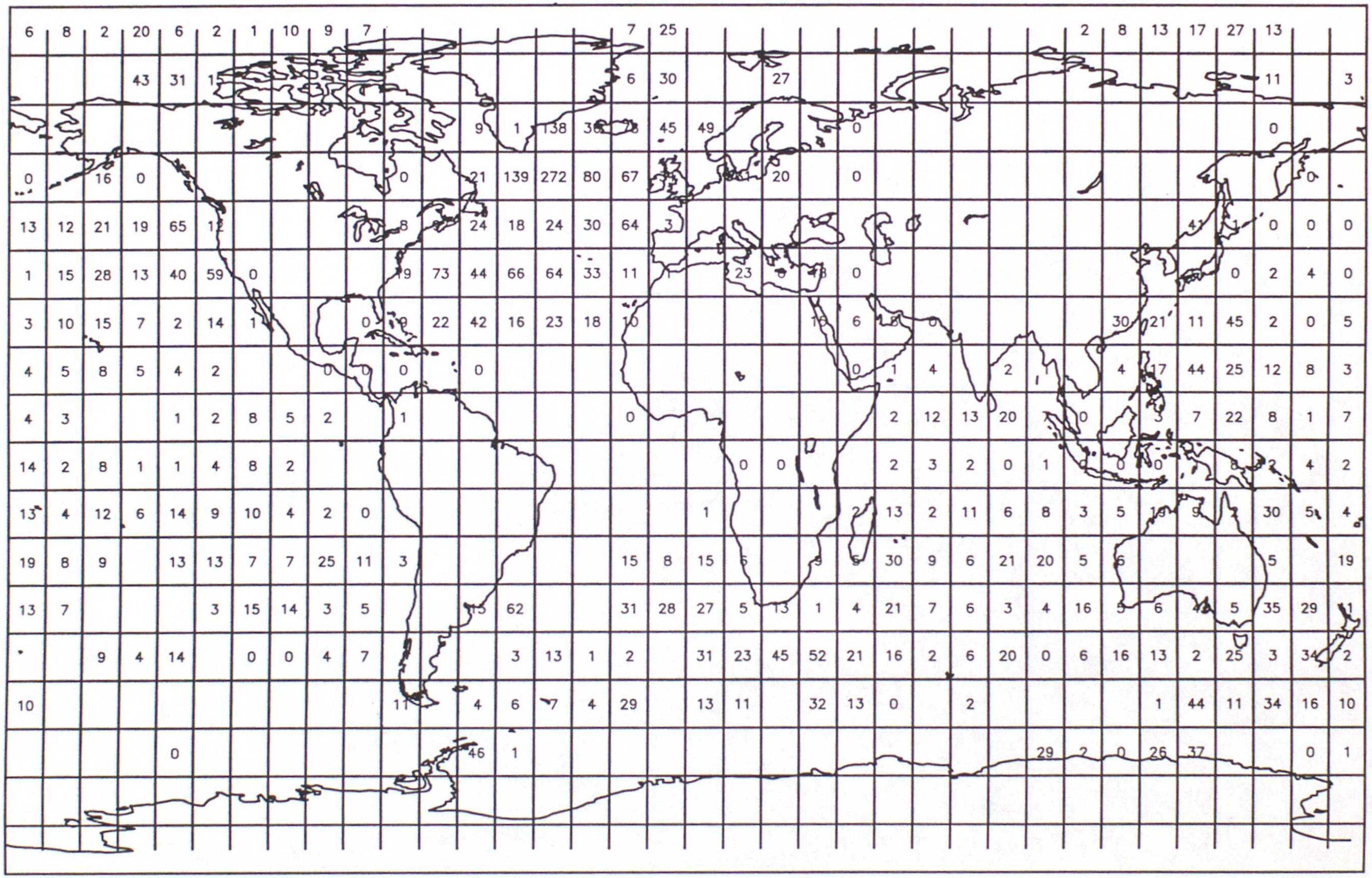
AVAILABILITY – DRIBU – SEPTEMBER 1995

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 4727

FIGURE 2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9 1 138 36 78 45 49 0 0
0 16 0 0 21 139 272 80 67 20 0 0
13 12 21 19 65 12 8 8 24 18 24 30 64 3 47 1 0 0 0
1 15 28 13 40 59 0 19 73 44 66 64 33 11 1 23 8 48 0 0 2 4 0
3 10 15 7 2 14 1 0 19 22 42 16 23 18 10 16 6 18 0 30 21 11 45 2 0 5
4 5 8 5 4 2 0 0 0 0 0 1 4 2 1 4 17 44 25 12 8 3
4 3 1 2 8 5 2 1 0 2 12 13 20 7 0 3 7 22 8 1 7
14 2 8 1 1 4 8 2 0 0 2 3 2 0 1 0 0 8 2 4 2
13 4 12 6 14 9 10 4 2 0 1 2 13 2 11 6 8 3 5 19 9 2 30 5 4
19 8 9 13 13 7 7 25 11 3 15 8 15 6 9 5 30 9 6 21 20 5 6 5 19
13 7 3 15 14 3 5 15 62 31 28 27 5 13 1 4 21 7 6 3 4 16 5 6 42 5 35 29 11
9 4 14 0 0 4 7 3 13 1 2 31 23 45 52 21 16 2 6 20 0 6 16 13 2 25 3 34 2
10 11 4 6 7 4 29 13 11 32 13 0 2 1 44 11 34 16 10
0 46 1 29 2 0 26 37 0 1

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1. |bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3. PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	107	0	0	82	1.0	5.0	5.1
60468	35.6N	6.2E	1052	S8	92	92	100	16	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	108	108	100	100	0.0	0.0	0.0
60670	24.6N	9.5E	1054	S8	103	0	0	98	1.1	8.9	9.0
63333	11.1N	39.7E	1916	MS	56	1	2	86	1.0	6.7	6.8
63453	8.8N	39.8E	1062	S	40	0	0	100	1.2	12.0	12.1
63478	5.1N	44.6E	320	MS	34	0	0	0	0.7	6.6	6.6
68014	19.6S	18.1E	1411	S8	84	0	0	49	1.6	-5.0	5.2
68442	29.1S	26.3E	1354	S8	107	0	0	93	1.0	-5.8	5.9
68752	32.8S	27.4E	524	S8	75	0	0	100	1.1	-8.2	8.3

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
29956	52.8N	99.9E	455	MS	113	9	8	62	6.8	-2.0	7.1
29999	52.5N	99.8E	1570	S8	104	102	98	91	0.1	-11.3	11.3
30554	54.5N	113.6E	995	MS	59	0	0	98	1.8	10.5	10.7
36870	43.4N	77.0E	663	MS	58	58	100	100	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	91	2	2	98	1.5	7.1	7.3
40743	36.2N	57.7E	941	MS	114	0	0	15	1.1	-4.6	4.7
40762	35.3N	59.2E	1333	MS	114	10	9	100	1.0	-13.1	13.1
40763	35.2N	58.5E	1060	MS	45	0	0	13	1.1	-5.4	5.5
40783	32.4N	49.7E	1972	MS	43	0	0	91	1.6	-5.8	6.0
40789	33.8N	55.1E	921	S	79	5	6	92	1.2	8.3	8.4
40836	30.8N	51.7E	1880	MS	89	1	1	97	1.1	8.0	8.1
40859	29.0N	53.7E	1383	MS	89	2	2	99	3.5	8.8	9.5
41244	24.2N	55.8E	299	M	116	0	0	0	1.4	7.9	8.0
41254	23.1N	57.7E	1755	S8	51	51	100	98	0.0	0.0	0.0
41312	16.9N	53.9E	33	MS	113	0	0	0	1.5	-4.2	4.5
41396	16.0N	48.9E	700	MS	29	0	0	66	1.6	6.4	6.6
44277	46.4N	96.3E	2147	S	77	3	4	19	1.0	-4.0	4.1
44292	47.9N	107.0E	1338	MS	68	0	0	41	1.2	4.9	5.0
44477	27.0N	87.4E	1445	S8	68	67	99	100	0.0	-7.0	7.0
47022	40.8N	128.2E	1206	S	110	1	1	27	1.2	4.4	4.6
52602	38.8N	93.4E	2734	S	118	0	0	20	2.2	-5.7	6.1
56444	28.5N	98.9E	3488	S	113	113	100	100	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	103	0	0	99	2.4	7.7	8.1
57816	26.5N	106.7E	1222	MS	120	118	98	99	8.2	5.9	10.1

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	26	0	0	0	1.2	-4.7	4.9
80315	3.0N	75.3W	443	MS	45	0	0	40	2.4	-5.3	5.8
80434	9.2N	66.0W	125	MS	20	0	0	5	1.8	-4.8	5.1
82392	3.7S	40.4W	83	MS	29	0	0	41	5.9	-5.6	8.1
82704	7.6S	72.7W	170	MS	67	0	0	0	1.8	-4.6	4.9

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
82825	8.8S	63.1W	95	MS	57	1	2	2	1.6	-5.2	5.4
83208	12.7S	60.1W	652	MS	82	1	1	12	1.4	5.2	5.4
83214	10.3S	54.9W	285	MS	30	0	0	0	1.2	-6.8	6.9
83235	12.3S	46.4W	660	MS	72	1	1	99	0.8	7.1	7.1
83295	13.4S	39.9W	755	MS	43	0	0	88	0.8	-4.2	4.3
83332	14.1S	46.4W	950	MS	71	40	56	100	1.0	14.0	14.0
83408	14.3S	43.8W	556	MS	67	1	1	100	0.9	12.0	12.0
83423	16.7S	49.3W	729	MS	74	0	0	66	1.1	-4.7	4.8
83488	17.8S	42.9W	1097	MS	75	75	100	99	0.0	0.0	0.0
83512	18.5S	54.8W	286	MS	52	1	2	17	3.0	-4.7	5.6
83531	18.6S	46.5W	896	MS	57	0	0	74	1.0	-6.8	6.9
83577	19.8S	47.9W	743	MS	27	0	0	22	2.4	-4.1	4.8
83587	19.8S	43.9W	850	MS	84	2	2	98	1.0	-8.1	8.2
83689	21.3S	43.8W	1171	MS	55	0	0	85	1.0	4.4	4.5
83704	22.3S	53.9W	369	MS	60	7	12	22	3.0	-9.1	9.6
84455	6.5S	76.4W	282	MS	87	0	0	6	2.6	5.2	5.8
84472	7.1S	78.5W	2622	S	50	2	4	86	1.2	-5.6	5.7
84501	8.1S	79.0W	30	MS	116	0	0	1	1.7	4.0	4.3
84542	9.4S	77.6W	2760	S	42	2	5	5	2.3	4.1	4.7
84658	12.6S	69.2W	266	MS	89	0	0	0	2.2	6.3	6.7
84686	13.6S	72.0W	3249	S	118	2	2	19	2.9	-6.3	6.9
84782	18.1S	70.3W	469	MS	118	0	0	0	1.8	7.3	7.5
85264	18.5S	64.1W	1998	S	45	0	0	38	2.4	-4.0	4.7
85312	19.8S	63.9W	992	S	43	1	2	95	2.1	-10.2	10.4
85406	18.3S	70.3W	58	M	117	0	0	8	1.6	4.9	5.2

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71632	45.8N	80.5W	190	MS	31	7	23	81	4.7	-8.0	9.3
71826	53.2N	70.9W	539	MS	88	88	100	0	0.0	0.0	0.0
72386	36.1N	115.2W	664	MS	112	89	79	0	1.0	-1.4	1.7
72488	39.5N	119.8W	1341	MS	97	78	80	1	1.7	-0.5	1.8
76118	30.4N	109.7W	1040	MS	24	1	4	100	0.7	-9.8	9.8
76160	29.1N	111.0W	211	MS	25	0	0	0	1.0	-4.1	4.2
76373	25.3N	105.8W	1967	MS	42	42	100	100	0.0	0.0	0.0
76539	22.1N	101.0W	1871	MS	83	0	0	75	0.9	-4.0	4.1
76632	20.1N	98.7W	2417	MS	42	0	0	98	1.1	-5.8	5.9
76658	19.3N	103.6W	723	MS	20	20	100	10	0.0	0.0	0.0
76726	18.9N	99.3W	1560	MS	68	1	1	99	1.3	-7.1	7.2
76762	17.5N	99.5W	1360	MS	62	2	3	98	3.4	11.2	11.7
76848	16.3N	92.1W	1530	MS	85	6	7	99	1.6	-13.1	13.2

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
96533	1.1N	109.7E	38	M	24	0	0	92	2.5	-4.6	5.2

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	89	0	0	99	1.0	-5.7	5.8
04382	61.9N	42.1W	39	MS	89	8	9	40	4.9	-4.4	6.6
08221	40.5N	3.6W	633	MS	114	0	0	98	0.8	6.4	6.4
11346	47.3N	12.8E	917	S8	88	0	0	38	1.4	-4.3	4.5
15052	47.4N	25.6E	1541	S8	114	0	0	89	1.0	-5.7	5.8
16020	46.5N	11.3E	1461	MS	81	81	100	0	0.0	0.0	0.0
16614	40.4N	21.3E	604	MS	105	0	0	100	0.9	-7.0	7.1
17084	40.6N	35.0E	837	MS	118	0	0	99	1.1	7.0	7.1
17260	37.1N	37.4E	855	MS	112	111	99	99	0.0	14.5	14.5
37228	43.1N	44.6E	670	MS	57	1	2	37	1.7	-4.0	4.3
40072	34.4N	40.9E	182	M	89	0	0	88	1.6	7.1	7.3

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89208	90.0S	0.0W	2835	S	81	81	100	0	0.0	0.0	0.0
89264	71.4S	68.9W	780	S8	80	3	4	39	4.0	7.2	8.2
89811	66.7S	112.9E	1362	S8	20	20	100	5	0.0	0.0	0.0
89828	74.5S	123.0E	3280	S7	81	1	1	5	3.0	4.8	5.7
89860	74.2S	160.3E	1772	S8	76	1	1	22	3.7	-6.4	7.4
89866	77.4S	163.8E	120	MS	79	3	4	22	4.3	6.8	8.0

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

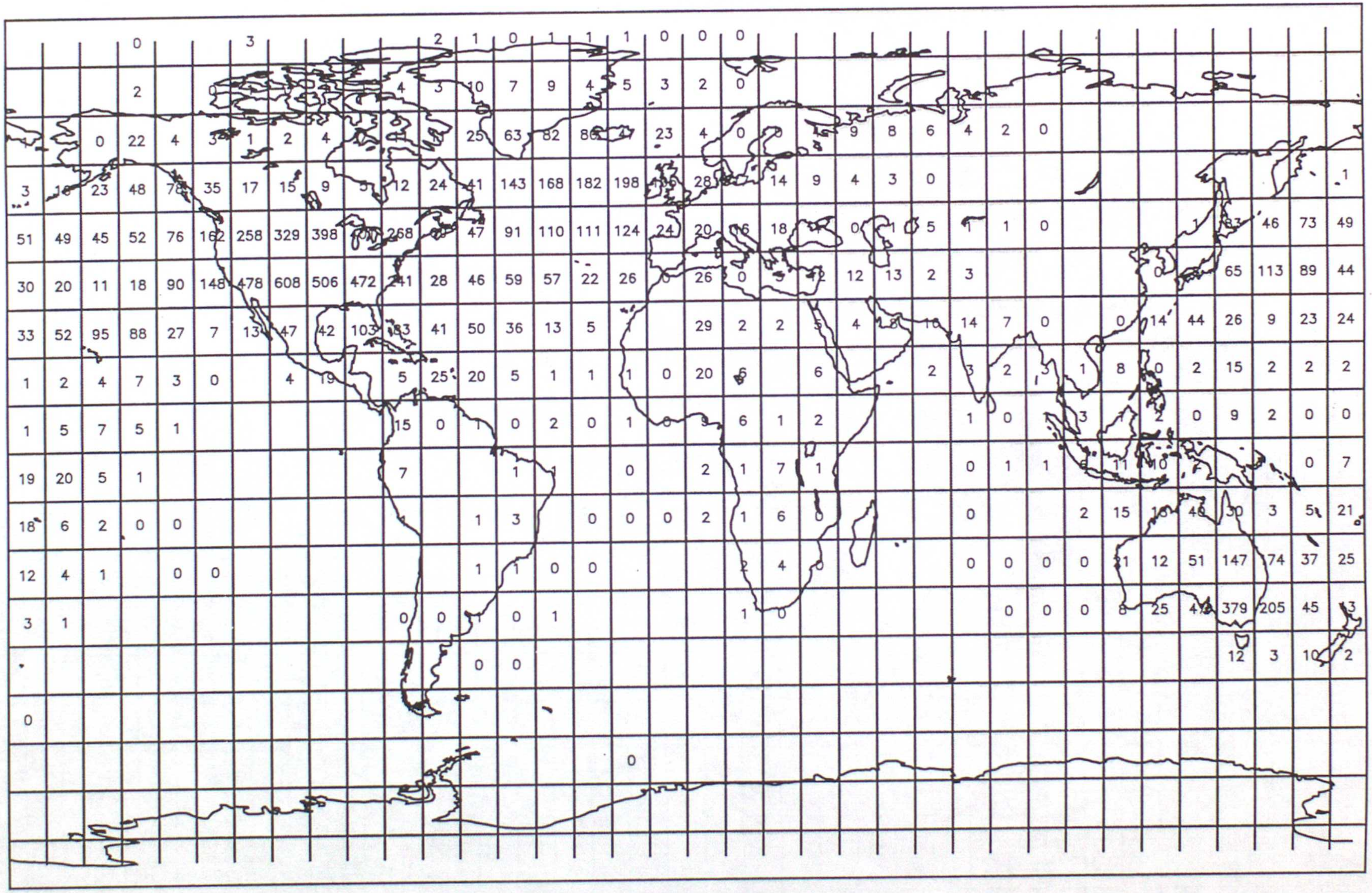
IDENT.	N.REP.	TEMPERATURE				WIND					
		PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	69	0	4	2.1	1.5	70	0	4	0	10.8	2.5
AAL	4731	0	1	1.7	0.1	4731	0	2	0	7.9	1.4
AAN	276	0	1	1.3	-0.5	255	0	2	0	7.7	0.6
AAR	2126	1	2	1.7	-0.1	2109	0	3	0	9.3	1.4
ACA	1340	0	1	2.0	0.0	1383	0	1	0	7.7	1.3
ACI	34	0	3	1.4	0.7	34	3	3	0	8.5	0.6
ACU	53	2	0	1.3	-0.6	53	0	0	0	6.9	1.6
AEA	268	22	100	4.8	2.4	253	0	13	0	9.5	1.0
AEL	539	1	2	1.6	-0.2	543	0	3	1	7.5	1.1
AFL	340	1	100	2.8	1.4	346	0	5	0	10.5	1.0
AFR	1272	0	6	1.7	0.0	1278	0	6	0	7.8	1.2
AIC	27	0	0	2.0	0.6	30	0	7	0	7.8	0.3
AIH	130	2	2	1.3	0.0	131	0	1	0	6.8	1.9
AJJ	29	0	7	2.6	-0.6	31	0	100	0	15.1	1.2
AME	32	3	9	2.1	-0.1	32	0	13	0	7.6	-0.5
AMT	407	1	1	1.3	0.1	414	0	3	0	7.9	0.7
AMX	140	1	1	1.3	0.0	141	0	2	0	7.3	1.2
ANA	776	0	2	1.8	-0.4	777	0	3	1	9.7	1.5
ANO	47	0	0	1.9	-0.6	47	0	0	0	6.3	2.6
ANZ	2775	1	4	2.1	-0.3	2771	0	3	1	8.2	1.4
AOM	558	1	3	1.7	0.8	563	0	3	1	8.0	1.8
ARP	83	6	1	1.6	0.7	83	0	1	0	7.3	1.7
ATN	33	6	9	2.3	-1.0	32	0	16	0	16.3	4.6
AUA	49	2	2	1.2	0.2	50	0	2	0	6.8	1.3
AVA	390	0	2	1.7	0.3	390	0	4	1	8.2	1.3
AVN	42	2	2	1.3	0.3	42	0	0	0	7.6	1.6
AZA	459	0	2	2.0	0.4	462	0	2	0	8.5	0.8
BAL	407	1	11	1.4	0.0	412	0	11	0	7.9	1.1
BAW	1537	0	2	1.8	-0.1	1563	0	3	1	7.3	1.2
BBB	58	2	9	1.6	-0.5	58	0	14	0	7.5	1.6
BWA	397	1	1	1.7	1.1	406	0	4	1	8.2	1.8
CAL	1989	1	2	1.6	0.0	1981	0	2	0	8.3	1.1
CCA	177	2	8	2.9	0.7	179	0	8	0	11.9	2.1
CCS	21	38	29	3.3	2.6	21	0	19	0	12.2	2.1
CDN	2255	0	1	2.0	0.4	2262	0	2	1	8.8	1.4
CES	165	1	1	1.7	0.0	165	1	3	0	9.9	1.0
CFG	957	0	2	1.8	-0.9	956	0	2	0	7.6	0.8
CKS	99	3	3	2.0	-0.5	106	0	7	1	9.0	1.4
CKT	125	1	4	1.4	0.2	122	0	4	0	6.1	1.1
CLI	223	0	3	2.1	0.2	223	0	2	0	6.9	1.9
CLX	72	0	0	2.4	-0.7	72	0	0	0	7.9	2.2
CMI	1025	1	3	1.8	0.3	1029	0	5	2	8.6	1.9
CMM	291	0	9	1.8	0.3	298	0	10	0	7.1	1.5
COA	733	1	2	1.4	0.5	729	0	2	0	6.9	0.8
CPA	47	0	2	1.9	-0.3	48	0	2	0	8.0	2.3
CRL	375	1	1	1.8	0.9	378	0	2	1	8.2	1.8
CTM	111	1	8	2.2	-1.2	112	0	9	0	8.1	0.9
CUB	419	1	67	2.7	1.7	423	0	100	0	12.0	3.4
DAF	33	0	3	2.1	0.4	33	0	6	6	7.3	-1.2
DAL	5811	1	2	2.0	0.6	5617	0	2	0	8.2	1.2
DHL	451	3	100	3.7	-1.5	457	0	2	0	8.7	0.1
DLH	2749	0	7	2.2	0.4	2792	0	10	3	7.3	0.9
DOA	366	1	11	1.8	0.7	367	0	10	0	8.1	1.5
EIA	57	5	12	2.8	0.9	55	0	7	2	7.1	0.9
ELY	94	0	5	1.7	0.1	95	0	8	0	7.5	0.8
EVA	1905	0	2	1.9	-0.5	1887	0	3	0	9.6	1.4
FDX	1068	1	2	2.1	0.8	1098	0	2	0	8.6	0.9
FIN	440	1	3	2.1	0.3	441	0	5	1	9.5	1.6
FJI	553	1	1	1.7	0.7	553	0	1	0	8.2	1.3

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GAF	141	1	2	2.5	0.4	144	0	3	1	7.6	1.6
GFA	20	5	0	1.2	0.4	20	0	0	0	9.8	0.6
GIA	218	2	2	1.6	0.3	217	0	0	0	7.4	1.2
HAL	1352	0	1	1.4	0.2	1354	0	2	0	7.6	1.6
HLA	33	0	6	2.0	-0.5	37	0	8	0	12.4	3.0
HLF	114	1	3	2.0	-0.4	113	0	4	1	7.4	1.2
HRH	50	0	8	1.8	0.5	50	0	8	0	7.5	0.0
IBE	2344	1	11	1.6	0.5	2336	0	11	0	8.0	1.0
ICE	427	0	1	1.9	0.1	426	0	3	1	7.8	1.0
JAA	49	0	2	2.6	1.1	50	0	2	0	7.5	2.9
JAL	6407	0	1	1.7	0.1	6394	0	2	1	8.4	1.1
JAS	51	2	0	1.1	0.6	51	0	2	0	7.1	0.6
JAZ	41	5	2	1.5	1.0	41	0	0	0	6.9	0.8
KAC	24	0	8	2.2	0.3	26	0	4	0	9.6	1.3
KAL	3875	1	2	1.9	0.1	3863	0	3	1	9.2	1.3
KIC	25	0	4	2.4	-0.3	23	0	0	0	11.5	2.6
KLM	2233	0	2	1.9	0.4	2257	0	2	1	7.2	1.2
LAZ	24	0	0	1.7	0.1	27	0	0	0	7.8	2.1
LDA	142	4	11	1.9	-0.8	139	0	9	0	8.3	0.5
LDI	170	1	3	1.9	-1.2	170	0	2	0	8.3	1.2
LIB	268	1	4	1.8	0.6	268	0	4	1	8.0	1.2
LOT	366	0	1	2.1	-0.2	366	0	2	0	8.3	0.9
LTU	729	1	3	1.6	0.4	703	0	4	0	7.8	1.0
MAS	314	1	3	1.8	-0.4	319	0	3	1	8.3	1.4
MDA	165	1	1	2.1	-0.1	166	1	3	0	10.9	1.0
MJD	38	0	0	2.0	-0.2	32	0	25	3	14.8	1.6
MPH	705	0	1	2.0	-0.5	706	0	1	0	7.4	0.8
NCA	605	0	1	2.0	0.5	605	0	3	1	8.8	1.4
NWA	9474	1	2	2.1	0.7	9495	0	3	1	8.5	1.2
OAL	49	4	6	2.0	0.4	51	0	4	0	8.9	2.9
PAC	78	3	9	2.3	0.3	78	1	8	0	8.4	1.3
PAL	1007	2	3	1.8	-0.3	1010	0	6	1	10.7	1.5
PAO	191	3	3	1.7	-0.2	187	0	1	1	6.7	0.5
PNL	74	0	1	2.2	1.0	73	0	3	0	12.0	3.4
QFA	1425	1	3	1.9	0.3	1423	0	3	1	7.3	1.4
RAF	154	0	3	2.0	-0.3	154	0	4	1	9.6	2.9
RIA	171	1	44	2.4	1.6	174	0	6	0	11.3	2.4
RJA	58	0	2	2.1	0.7	59	0	0	0	9.5	2.1
RKA	62	8	6	2.1	-0.3	62	0	0	0	6.5	0.9
RON	44	0	0	1.1	0.5	45	0	0	0	9.8	0.9
ROT	23	4	9	2.2	-0.3	23	0	0	0	7.7	0.7
ROY	61	2	11	4.3	-0.7	63	0	2	0	7.1	0.9
RRR	263	0	24	2.3	-0.9	273	0	27	0	11.6	1.7
SAA	196	2	4	2.0	-0.4	195	0	2	0	7.9	2.0
SAB	50	0	0	1.1	0.2	52	0	0	0	5.8	1.5
SAS	1225	0	1	2.2	-0.4	1231	0	2	1	8.2	1.3
SIA	1372	1	1	1.8	-0.6	1383	0	3	1	9.4	1.2
SOL	56	0	2	1.0	0.3	56	0	2	0	10.6	-1.1
SPP	294	1	8	1.5	-0.1	288	0	10	0	8.2	1.5
SVA	214	0	7	1.8	0.2	238	0	9	0	8.0	0.3
SWR	108	1	5	1.9	0.0	116	0	3	0	8.3	2.6
TAP	876	0	5	1.5	-0.2	870	0	7	1	8.0	1.6
TEJ	79	0	15	1.2	0.5	79	0	15	0	7.2	0.6
THA	342	0	0	1.8	-0.2	344	0	3	1	10.3	1.6
TOW	118	0	0	1.5	-0.6	115	0	0	0	7.4	0.8
TSC	190	2	5	2.1	0.6	194	0	4	0	8.2	1.5
TWA	1519	1	2	1.9	0.0	1511	0	3	1	8.3	1.3
UAL	46704	0	2	1.4	0.1	46730	0	2	0	6.9	1.0
ULE	164	1	2	1.5	0.1	162	0	4	0	9.9	0.6

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
UPS	836	0	10	1.7	-0.1	856	0	11	0	8.2	1.0
USA	167	1	4	1.6	-0.1	165	0	3	0	8.1	0.6
VIA	576	1	2	1.6	0.8	579	0	4	1	7.1	1.4
VIR	156	1	0	1.4	-0.2	157	0	2	0	7.4	2.4
VRB	33	0	3	2.8	1.4	34	0	6	3	8.1	1.8
VRG	95	2	2	1.6	0.4	97	0	3	0	10.9	1.7
VSP	122	2	2	1.7	0.4	122	0	1	0	10.3	1.6
WOA	103	6	9	1.9	0.5	104	0	9	0	10.9	2.8
AN	25735	0	1	1.4	0.1	25544	0	1	0	6.4	1.4
BA	21271	0	14	1.6	0.5	21240	0	20	0	7.1	1.4
DL	64419	0	34	1.3	0.0	64419	0	100	0	6.1	1.1
KL	12360	0	17	1.6	0.7	12354	0	21	0	6.7	1.4
LH	2217	0	3	1.6	0.2	2214	0	3	0	6.6	1.5
NW	17988	0	1	1.4	0.1	17989	0	1	0	5.9	0.9
QF	7964	0	1	1.2	0.3	7958	0	1	0	6.0	1.0
M	245	2	95	3.4	0.7	255	0	95	0	11.0	2.5
N	471	3	5	2.3	0.6	479	0	4	1	9.4	1.0

MEAN DAILY COUNT OF AIRCRAFT 70 - 500 HPA
SEPTEMBER 1995
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3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2 4 3 10 7 9 4 5 3 2 0
0 22 4 3 1 2 4 25 63 82 86 47 23 4 0 9 8 6 4 2 0
3 16 23 48 78 35 17 15 9 5 12 24 41 143 168 182 198 28 14 9 4 3 0 1
51 49 45 52 76 162 258 329 398 268 47 91 110 111 124 24 20 16 18 0 1 5 1 1 0 1 83 46 73 49
30 20 11 18 90 148 478 608 506 472 241 28 46 59 57 22 26 26 0 12 13 2 3 0 65 113 89 44
33 52 95 88 27 7 13 47 42 103 183 41 50 36 13 5 29 2 2 4 8 10 14 7 0 0 14 44 26 9 23 24
1 2 4 7 3 0 4 19 5 25 20 5 1 1 1 0 20 6 6 2 3 2 3 1 8 0 2 15 2 2 2
1 5 7 5 1 15 0 0 2 0 1 6 1 2 1 0 3 2 0 9 2 0 0
19 20 5 1 7 1 0 2 1 7 1 0 1 1 11 10 0 7
18 6 2 0 0 1 3 0 0 0 2 1 6 0 2 15 40 30 3 5 21
12 4 1 0 0 1 1 0 0 4 0 0 0 0 21 12 51 147 74 37 25
3 1 0 0 0 1 1 0 0 0 8 25 379 205 45 13
0 0 12 3 10 2
0
0

AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

SEPTEMBER 1995

OBSERVATIONS WITH O−B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 4

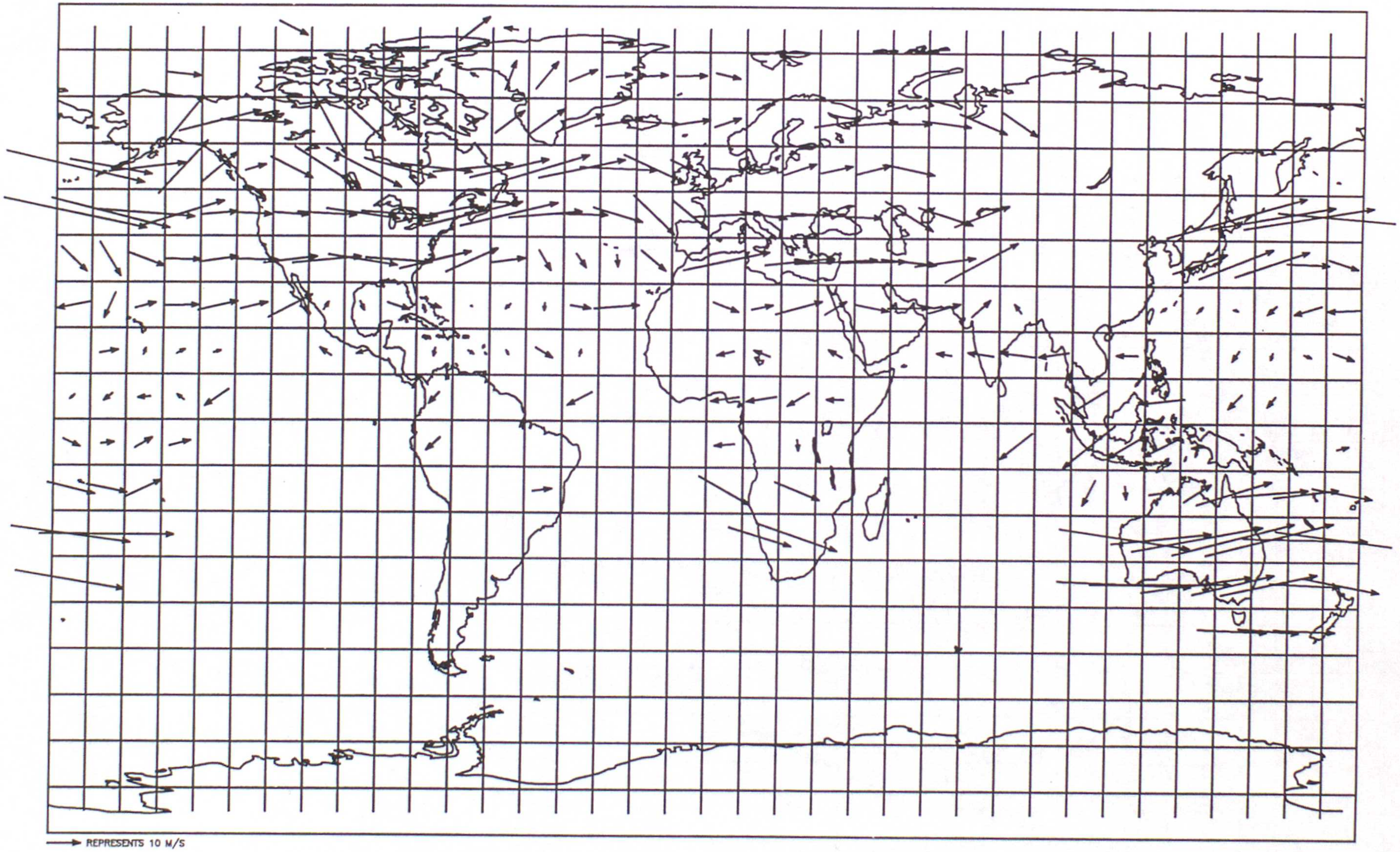
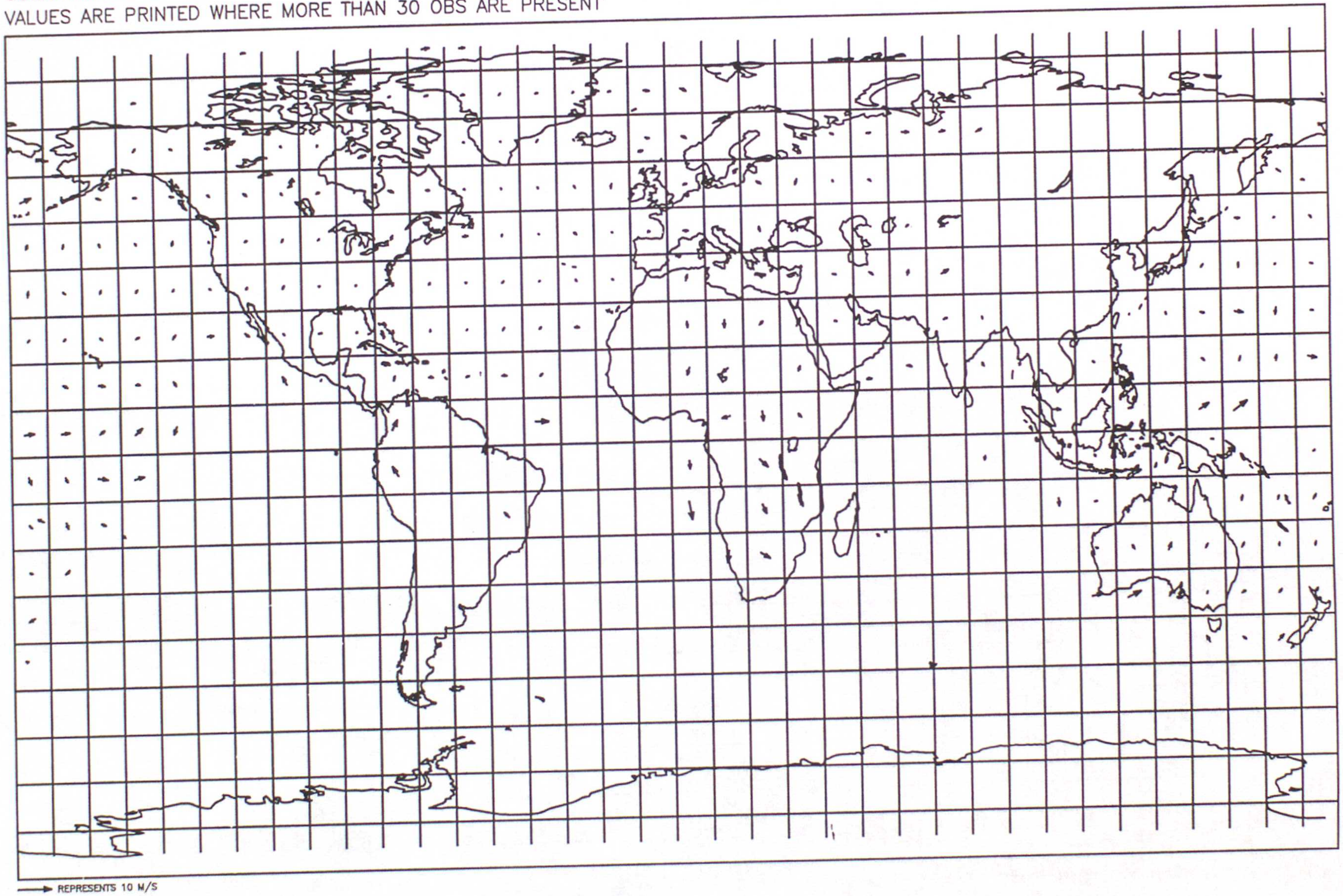
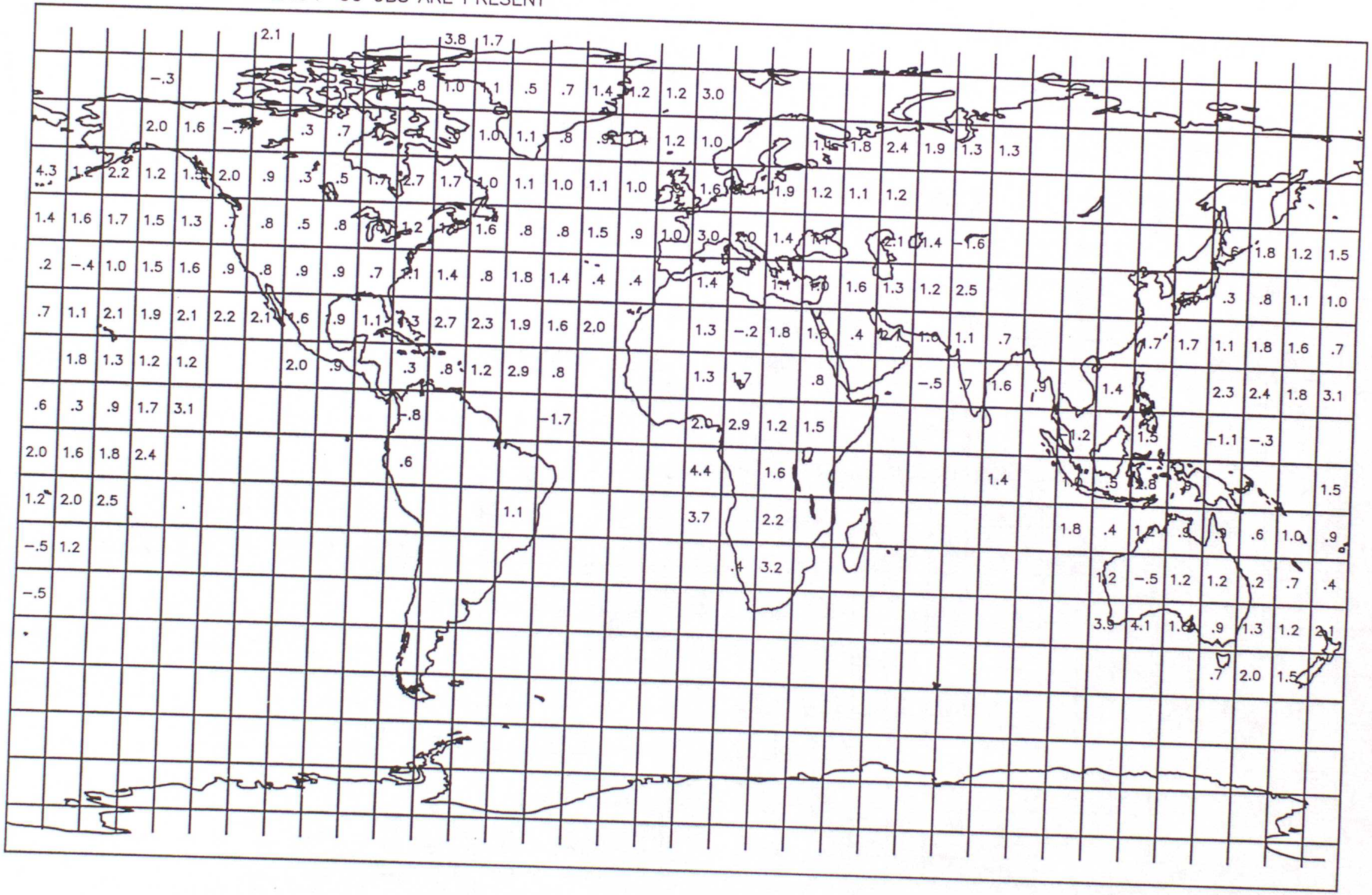


FIGURE 5

AIRCRAFT MEAN O-B WINDS BETWEEN 70 AND 500 HPA
SEPTEMBER 1995
OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O-B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
SEPTEMBER 1995
OBSERVATIONS WITH O-B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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-.3 .8 1.0 1 .5 .7 1.4 1.2 1.2 3.0
2.0 1.6 -.7 .3 .7 1.0 1.1 .8 .9 1.4 1.2 1.0 1.4 1.8 2.4 1.9 1.3 1.3
4.3 1.2 2.2 1.2 1.5 2.0 .9 .3 .5 1.7 2.7 1.7 1.0 1.1 1.0 1.1 1.0 1.6 1.9 1.2 1.1 1.2
1.4 1.6 1.7 1.5 1.3 .7 .8 .5 .8 1.2 1.6 .8 .8 1.5 .9 1.0 3.0 1.0 1.4 1.1 2.1 1.4 -1.6
.2 -.4 1.0 1.5 1.6 .9 .8 .9 .9 .7 .1 1.4 .8 1.8 1.4 .4 .4 1.4 1.1 1.0 1.6 1.3 1.2 2.5 .6 1.8 1.2 1.5
.7 1.1 2.1 1.9 2.1 2.2 2.1 1.6 .9 1.1 1.3 2.7 2.3 1.9 1.6 2.0 1.3 -.2 1.8 1.6 .4 2.4 1.0 1.1 .7 .3 .8 1.1 1.0
1.8 1.3 1.2 1.2 2.0 .9 .3 .8 1.2 2.9 .8 1.3 1.7 .8 -.5 .7 1.6 .9 1.4 1.7 1.7 1.1 1.8 1.6 .7
.6 .3 .9 1.7 3.1 -.8 -1.7 2.0 2.9 1.2 1.5 1.2 1.5 2.3 2.4 1.8 3.1 -1.1 -.3
2.0 1.6 1.8 2.4 .6 4.4 1.6 1.4 1.0 .5 2.8 .9 1.5
1.2 2.0 2.5 1.1 3.7 2.2 1.8 .4 1.2 .9 .9 .6 1.0 .9
-.5 1.2 .4 3.2 1.2 -.5 1.2 1.2 .2 .7 .4
-.5 3.9 4.1 1.6 .9 1.3 1.2 2.1
.7 2.0 1.5

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
SEPTEMBER 1995
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

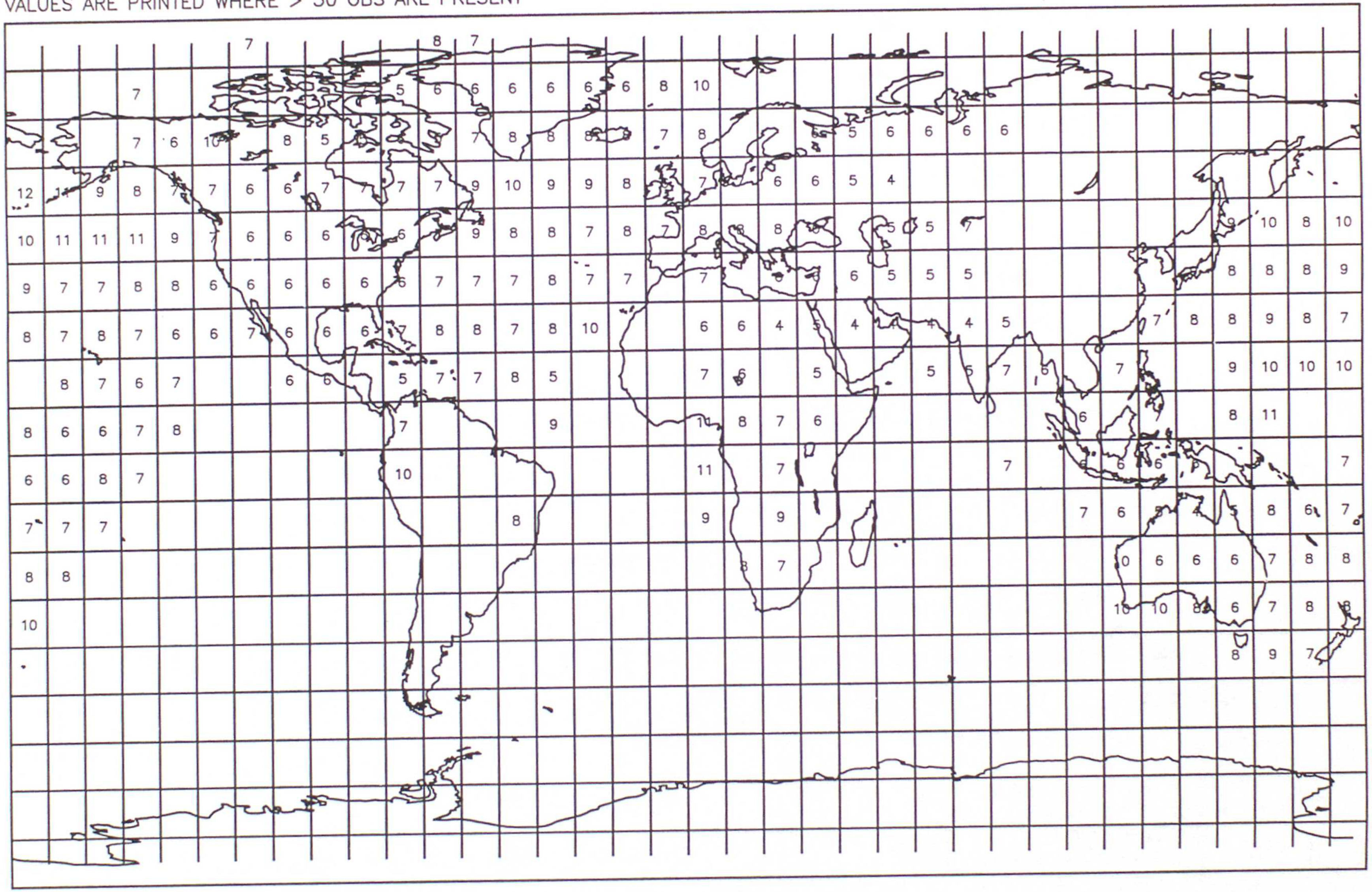

7 8 7
7 5 6 6 6 6 6 6 8 10
7 6 10 8 5 7 8 8 8 7 8 5 6 6 6 6
12 11 9 8 7 7 6 6 7 7 7 7 9 10 9 9 8 7 6 6 5 4
10 11 11 11 9 7 6 6 6 6 6 9 8 8 7 8 7 8 8 8 6 5 5 5 7 9 10 8 10
9 7 7 8 8 6 6 6 6 6 6 7 7 7 8 7 7 7 6 6 5 5 5 8 8 8 9
8 7 8 7 6 6 7 6 6 6 7 8 8 7 8 10 6 6 4 5 4 4 4 5 7 8 8 9 8 7
8 7 6 7 6 6 5 7 7 8 5 7 6 5 5 5 7 6 7 9 10 10 10
8 6 6 7 8 7 9 11 8 7 6 6 7 8 11
6 6 8 7 10 11 7 7 6 6 6 7
7 7 7 8 9 9 7 6 5 4 5 8 6 7
8 8 8 7 0 6 6 6 7 8 8
10 10 10 8 6 7 8 8
8 9 7

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA :$\geq$ 3 levels with $\geq$ 10 observations and $\geq$ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
25399	00	Z	250	66/-170	15	3	65.8	75.6	100.2	6
25399	12	Z	50	66/-170	11	0	124.0	118.0	171.2	6
26258	00	Z	150	58/ 28	20	4	63.7	192.4	202.7	9
33791	12	Z	70	48/ 33	18	0	79.7	135.6	157.3	8
37018	12	Z	100	44/ 39	20	0	37.8	156.3	160.8	9
41594	00	Z	500	32/ 73	12	0	31.9	-56.5	64.9	7
42027	00	Z	70	34/ 75	12	0	160.6	81.4	180.0	4
42182	12	Z	30	29/ 77	15	0	158.9	110.0	193.3	4
42339	00	Z	100	26/ 73	14	1	84.8	-168.9	189.0	8
42339	12	Z	150	26/ 73	15	0	87.1	-51.5	101.2	4
42361	00	Z	200	26/ 78	16	1	84.4	-42.7	94.6	7
42361	12	Z	150	26/ 78	10	0	111.5	-54.0	123.8	6
42369	00	Z	150	27/ 81	19	1	108.6	-17.1	110.0	7
42369	12	Z	100	27/ 81	10	2	109.6	125.2	166.4	6
42379	00	Z	30	27/ 83	16	1	129.9	182.2	223.8	9
42379	12	Z	30	27/ 83	16	0	111.2	175.7	208.0	10
42701	00	Z	150	23/ 85	10	0	47.4	-130.6	138.9	6
42724	00	Z	70	24/ 91	12	0	141.8	21.8	143.5	4
42724	12	Z	200	24/ 91	17	0	92.6	-11.5	93.3	6
42809	00	Z	30	23/ 88	10	0	136.4	163.2	212.7	4
42867	00	Z	50	21/ 79	14	0	168.9	4.3	169.0	9
42867	12	Z	30	21/ 79	11	0	178.1	83.6	196.8	4
42971	12	Z	150	20/ 86	22	1	71.7	-62.7	95.3	4
43014	00	Z	200	20/ 75	17	1	84.6	12.1	85.4	4
43014	12	Z	150	20/ 75	12	0	119.3	108.3	161.1	6
43128	00	Z	50	17/ 78	10	0	187.2	28.0	189.3	4
43150	12	Z	250	18/ 83	11	0	62.0	-68.8	92.6	6
43279	12	Z	250	13/ 80	25	0	62.7	-47.8	78.8	4
43295	00	Z	50	13/ 78	10	0	74.5	201.5	214.8	5
43295	12	Z	30	13/ 78	9	1	83.4	307.1	318.2	6
43369	00	Z	70	8/ 73	17	0	109.1	-93.5	143.7	5
43369	12	Z	100	8/ 73	14	1	131.2	-56.1	142.7	8
43371	00	Z	50	8/ 77	10	1	98.6	-221.6	242.5	7
44212	12	Z	100	50/ 92	10	1	62.9	105.5	122.8	4
50527	12	Z	70	49/ 120	22	0	105.0	86.6	136.1	4
52836	12	Z	150	36/ 98	26	0	48.0	105.2	115.7	5
54135	00	Z	150	44/ 122	30	0	54.3	71.5	89.8	4
55299	12	Z	30	31/ 92	10	0	54.5	185.9	193.7	4
55591	12	Z	30	30/ 91	15	0	77.8	179.4	195.5	4
56146	12	Z	150	32/ 100	26	0	32.9	89.8	95.7	4
57516	12	Z	100	30/ 106	24	1	35.9	131.7	136.5	6
57679	00	Z	100	28/ 113	25	0	33.2	118.1	122.7	4
57679	12	Z	100	28/ 113	20	0	49.1	111.5	121.8	5
57749	00	Z	30	28/ 110	24	0	39.9	180.5	184.8	5
57957	00	Z	100	25/ 110	27	1	56.0	135.2	146.3	6
57957	12	Z	100	25/ 110	29	0	37.0	133.0	138.0	6
58203	00	Z	30	33/ 116	17	0	88.2	167.2	189.0	4
62306	00	Z	50	31/ 27	12	0	47.1	220.6	225.6	5
62306	12	Z	50	31/ 27	4	14	325.4	192.5	378.1	9
62378	00	Z	70	30/ 31	15	0	47.6	150.5	157.9	5
62378	12	Z	30	30/ 31	1	12	0.0	447.0	447.0	9
74455	00	Z	200	48/ -91	19	8	59.8	145.6	157.4	9
74455	12	Z	150	48/ -91	24	2	68.0	157.1	171.2	9
82332	12	Z	30	-3/ -60	20	0	40.3	194.6	198.7	5
82824	12	Z	850	-9/ -64	17	0	22.0	-24.8	33.1	4
83208	12	Z	30	-13/ -60	13	0	85.9	217.8	234.2	6
83612	12	Z	30	-20/ -55	10	0	67.5	195.0	206.4	4
89050	00	Z	70	-62/ -59	17	9	65.8	233.5	242.6	10
96163	00	Z	150	-1/ 100	10	1	109.3	-70.4	130.0	9
96237	00	Z	200	-2/ 106	26	0	101.0	-27.2	104.6	7

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – SEPTEMBER 1995

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1384

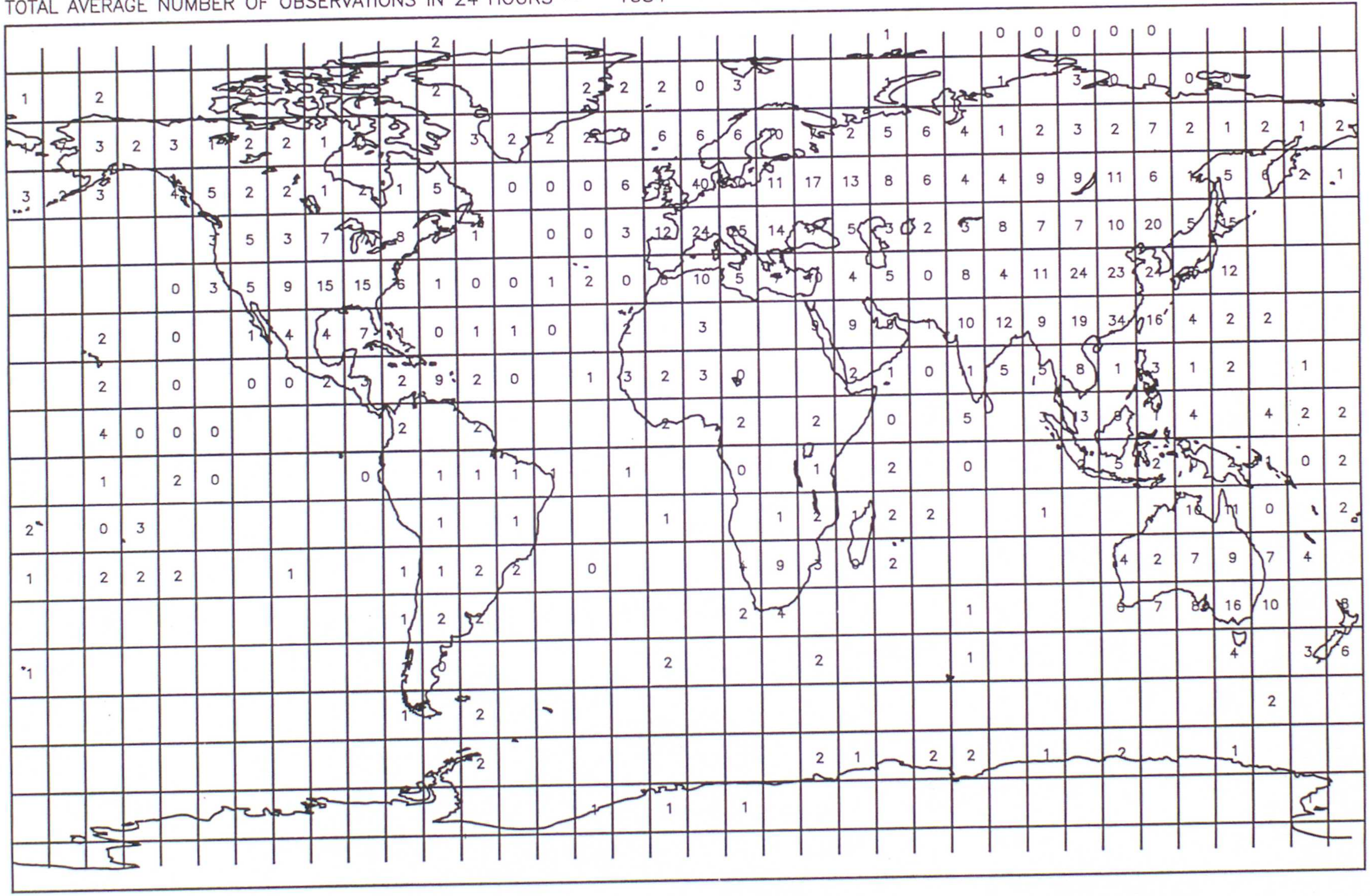


TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 100.0 hPa

Element monitored :VECTOR WIND in $m\ s^{-1}$

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross-errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA :$\geq$ 10 observations and $\geq$ 15 $m\ s^{-1}$ RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

```
 WMO  OBS                                NUM    NUM     %
IDENT TIME ELM   LEV    LAT/LONG  OBS   GROSS   REJ   UBIAS   VBIAS    RMS    LEVELS


50527  12   V    200     49/ 120   26      0     23    -0.2     0.0    15.8       1
74455  00   V    250     48/ -91   25      0     32     5.8     3.4    16.0       2
74455  12   V    250     48/ -91   20      1     28     3.0     0.7    16.0       2
```

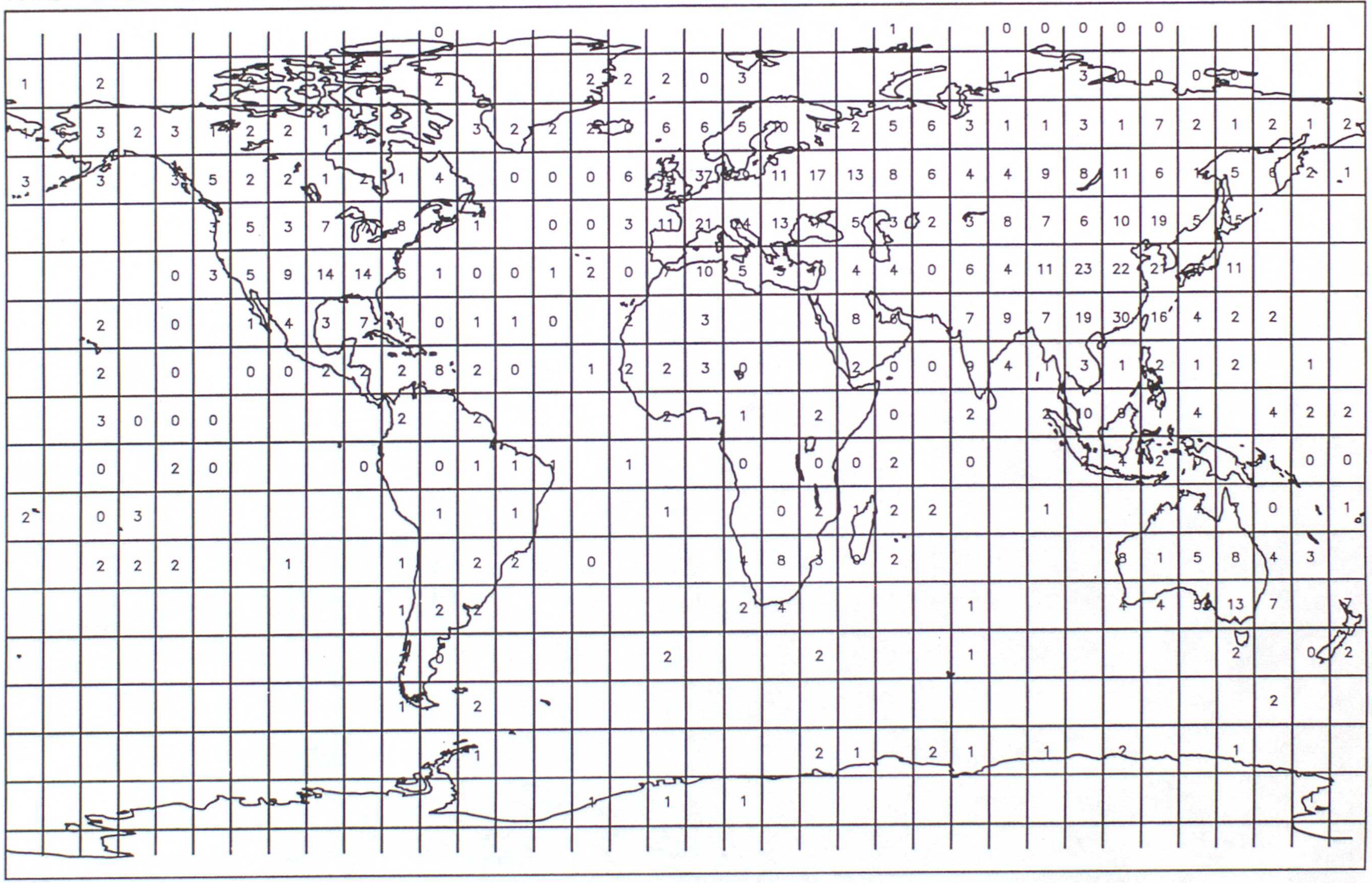
AVAILABILITY – TEMP/PILOT – 300 HPA WIND – SEPTEMBER 1995

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1236

FIGURE 9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3 5 3 7 8 1 0 0 3 11 21 24 13 5 3 2 3 8 7 6 10 19 5 15
0 3 5 9 14 14 6 1 0 0 1 2 0 7 10 5 5 0 4 4 0 6 4 11 23 22 21 0 11
2 0 1 4 3 7 1 0 1 1 0 2 3 3 8 6 1 7 9 7 19 30 16 4 2 2
2 0 0 0 2 2 2 8 2 0 1 2 2 3 0 2 0 0 9 4 1 3 1 2 1 2 1
3 0 0 0 2 2 2 1 2 0 2 2 10 8 4 4 2 2
0 2 0 0 0 1 1 1 1 0 0 0 2 0 4 2 1 0 0
2 0 3 1 1 1 0 2 1 2 2 1 4 7 0 1
2 2 2 1 1 2 2 0 4 8 3 0 2 8 1 5 8 4 3
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2 0 2 1 2 0 2
1 2 2
1 2 1 2 1 1 2 1
1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
17280	12	DD	38/ 40	26	-10.4	2.5	9.2
25399	00	DD	66/-170	14	11.2	9.1	22.1
25399	12	DD	66/-170	14	10.5	7.6	16.9
41114	12	DD	18/ 43	18	12.1	9.2	28.9
42339	12	DD	26/ 73	10	14.3	9.2	19.0
47158	00	DD	35/ 127	29	12.3	2.8	9.2
48327	00	DD	19/ 99	10	10.6	4.9	29.8
48407	00	DD	15/ 105	23	-23.6	6.8	23.3
48568	00	DD	7/ 101	20	13.8	8.6	22.8
53614	12	DD	38/ 106	29	-11.4	3.7	8.3
59134	00	DD	24/ 118	22	11.3	8.0	16.6
59134	12	DD	24/ 118	19	14.5	6.4	17.6
60571	00	DD	32/ -2	22	14.4	3.7	17.9
60571	12	DD	32/ -2	21	11.1	3.7	16.4
72251	00	DD	28/ -97	18	-11.3	3.7	17.0
72251	12	DD	28/ -97	17	-15.7	5.1	17.8
78016	00	DD	32/ -65	13	-10.9	7.3	21.8
78806	12	DD	9/ -80	12	25.9	4.6	29.7
91925	00	DD	-10/-139	19	11.9	7.9	25.2
96749	00	DD	-6/ 107	20	-15.1	7.2	19.2
96935	00	DD	-7/ 113	22	18.6	5.6	22.0
96935	12	DD	-7/ 113	19	18.1	6.6	21.6
97724	00	DD	-4/ 128	22	17.5	4.8	22.6

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH:September, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer:701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

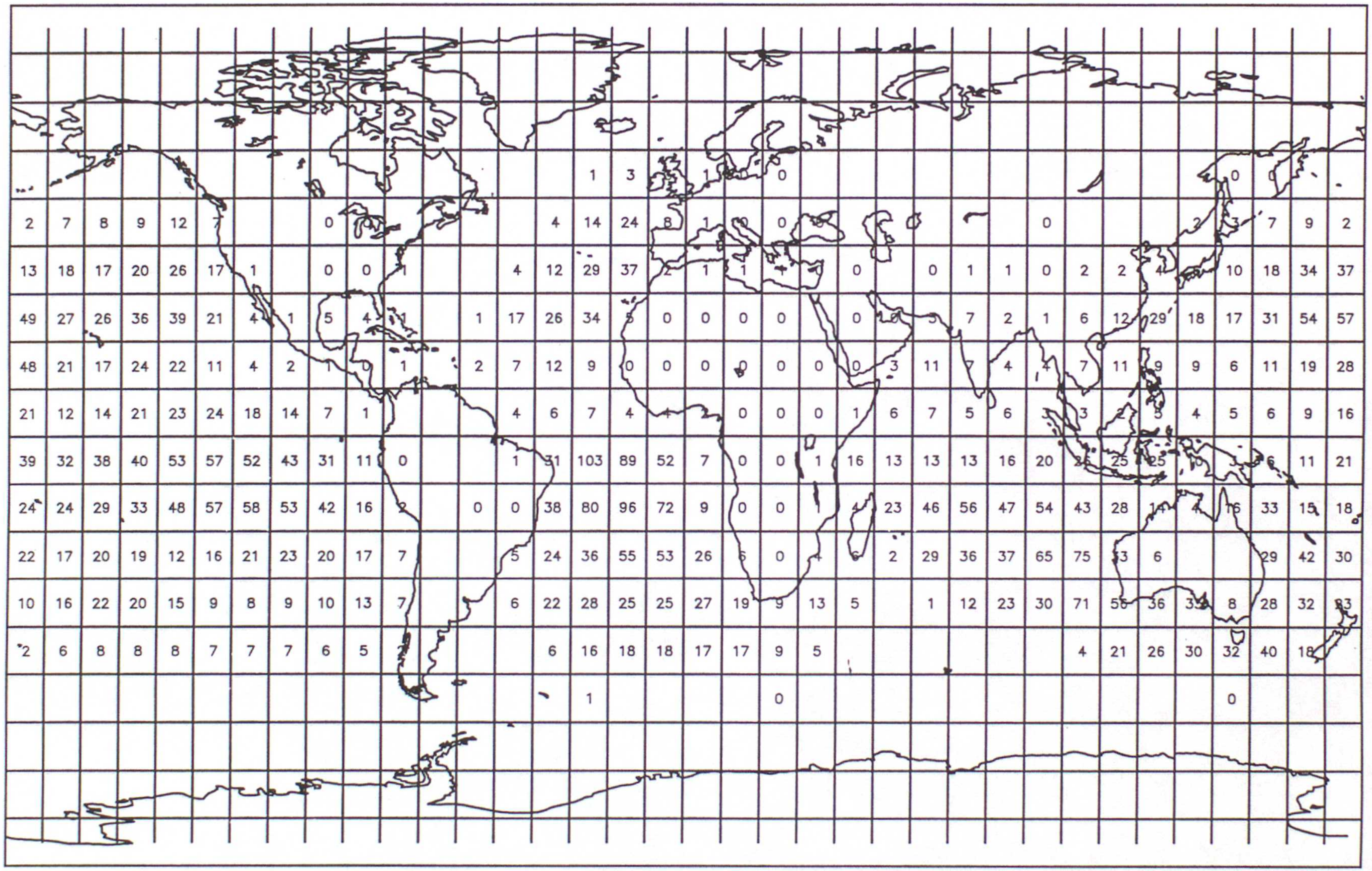
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

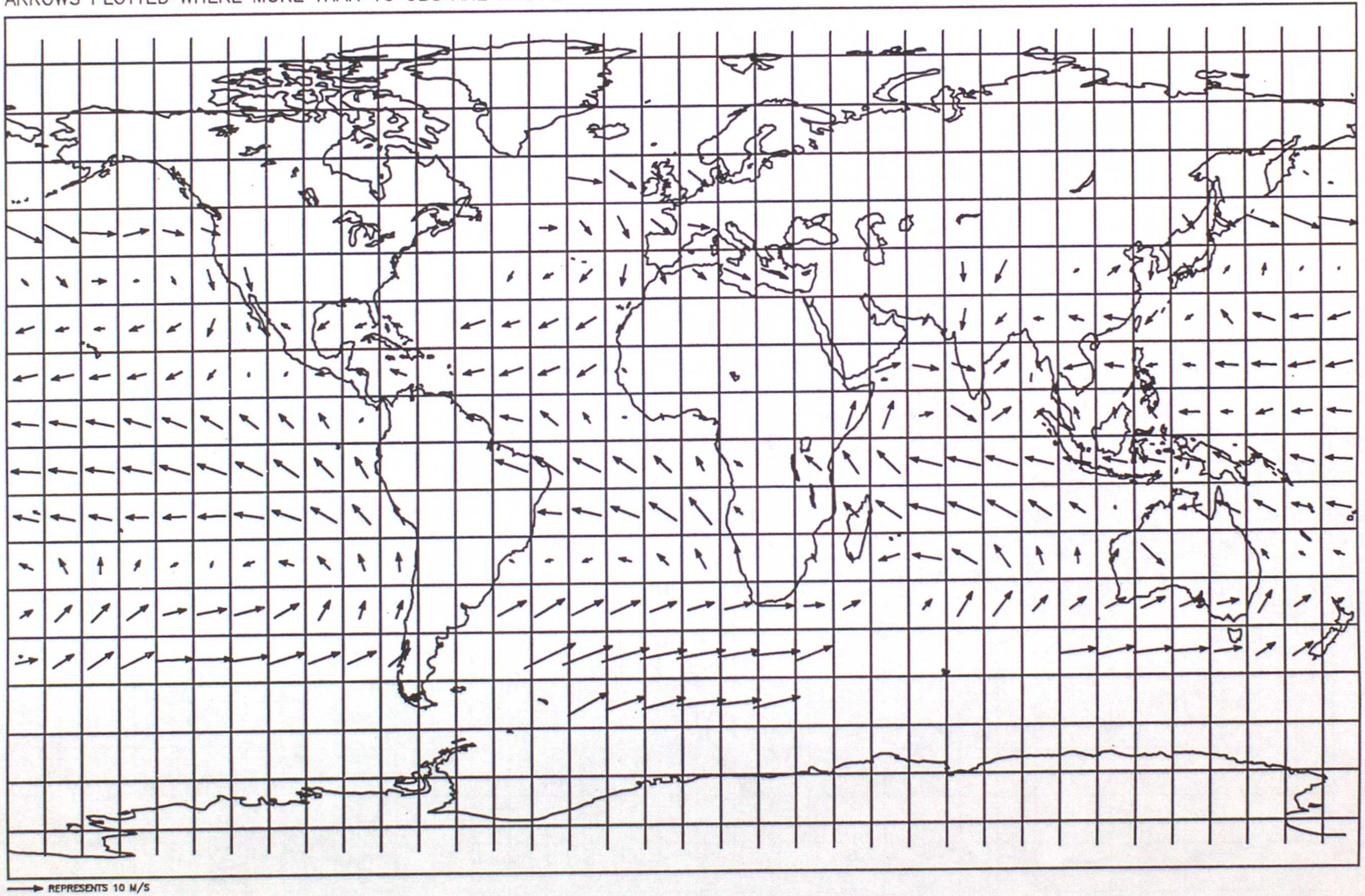
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
SEPTEMBER 1995



															1	3		1		0												0	0		
2	7	8	9	12	7			0	0					4	14	24	8	1	0	0	0						0				2	3	7	9	2
13	18	17	20	26	17	1		0	0	1			4	12	29	37	2	1	1	1	0	0		0	1	1	0	2	2	4		10	18	34	37
49	27	26	36	39	21	4	1	5	4	1		1	17	26	34	5	0	0	0	0		0	0	3	7	2	1	6	12	29	18	17	31	54	57
48	21	17	24	22	11	4	2	1	0	1		2	7	12	9	0	0	0	0	0	0	0	3	11	7	4	4	7	11	9	9	6	11	19	28
21	12	14	21	23	24	18	14	7	1				4	6	7	4	4	2	0	0	0	1	6	7	5	6	3	3	2	3	4	5	6	9	16
39	32	38	40	53	57	52	43	31	11	0			1	31	103	89	52	7	0	0	1	16	13	13	13	16	20	25	25	25	10	3	6	11	21
24	24	29	33	48	57	58	53	42	16	2		0	0	38	80	96	72	9	0	0	1	4	23	46	56	47	54	43	28	14	4	16	33	15	18
22	17	20	19	12	16	21	23	20	17	7			5	24	36	55	53	26	6	0	4	6	2	29	36	37	65	75	33	6			29	42	30
10	16	22	20	15	9	8	9	10	13	7			6	22	28	25	25	27	19	9	13	5		1	12	23	30	71	56	36	33	8	28	32	33
2	6	8	8	8	7	7	7	6	5	2				6	16	18	18	17	17	9	5							4	21	26	30	32	40	18	
															1					0												0			

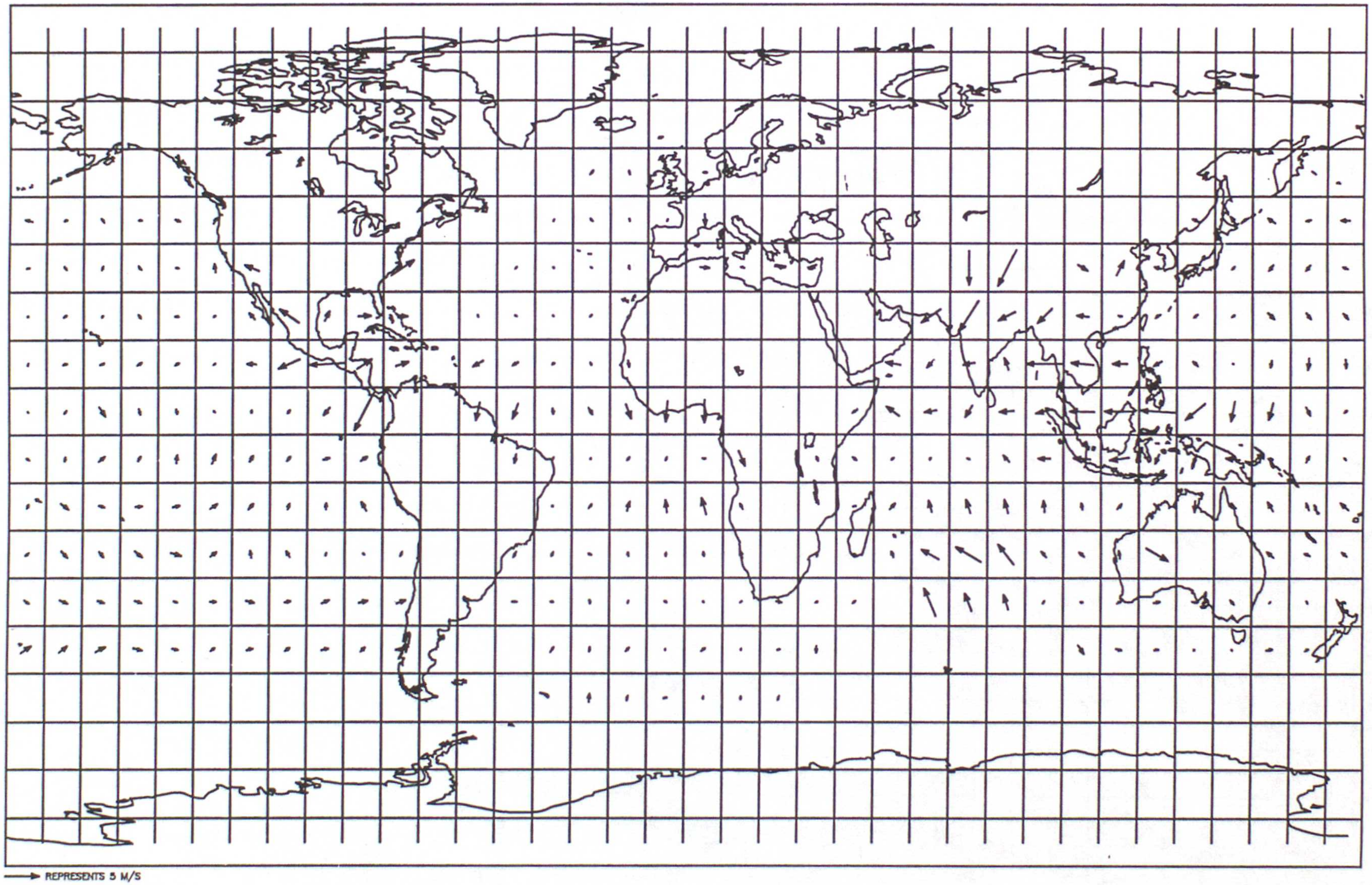
FIGURE 11

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
SEPTEMBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

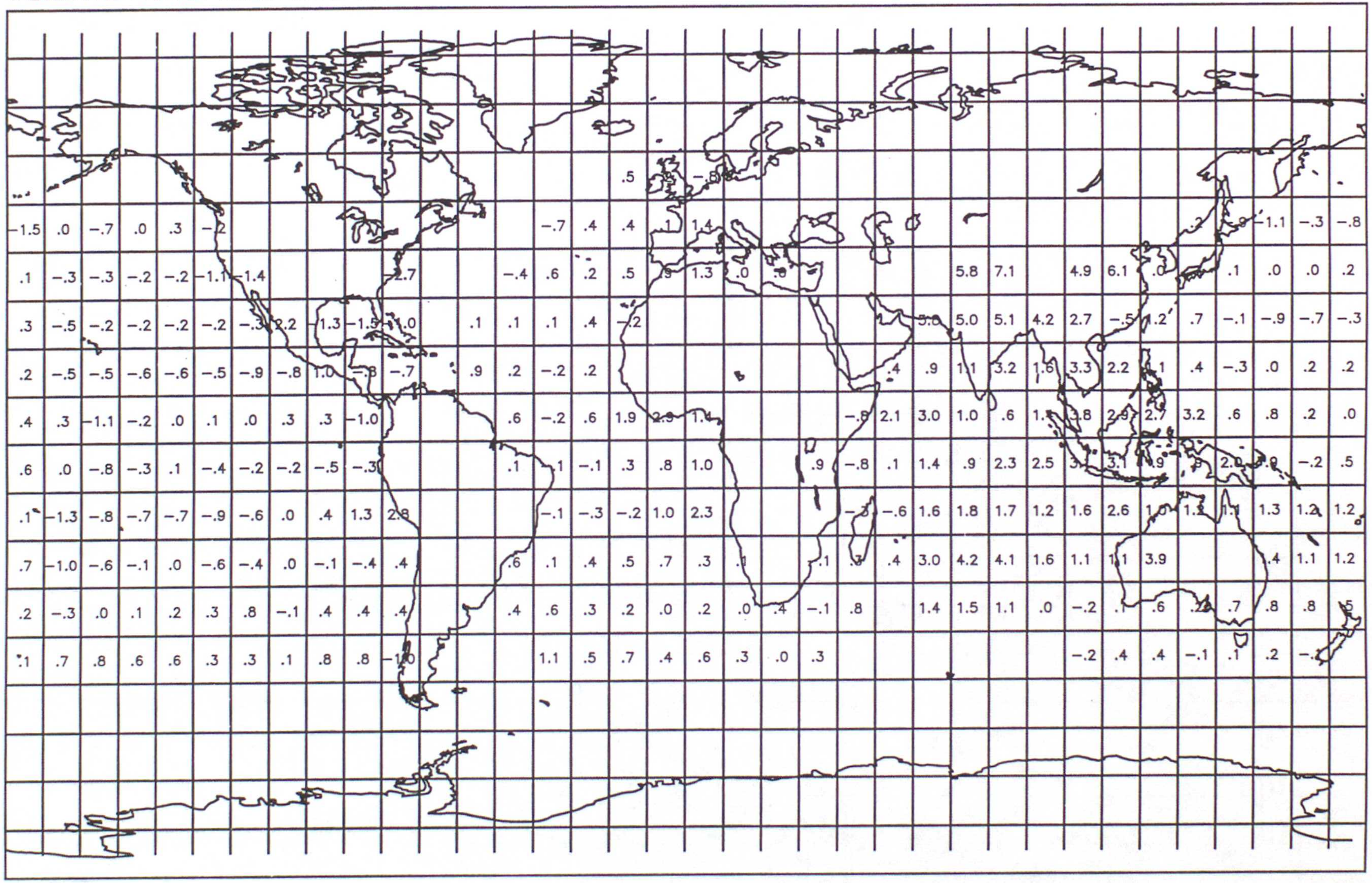

REPRESENTS 10 M/S

SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA
SEPTEMBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

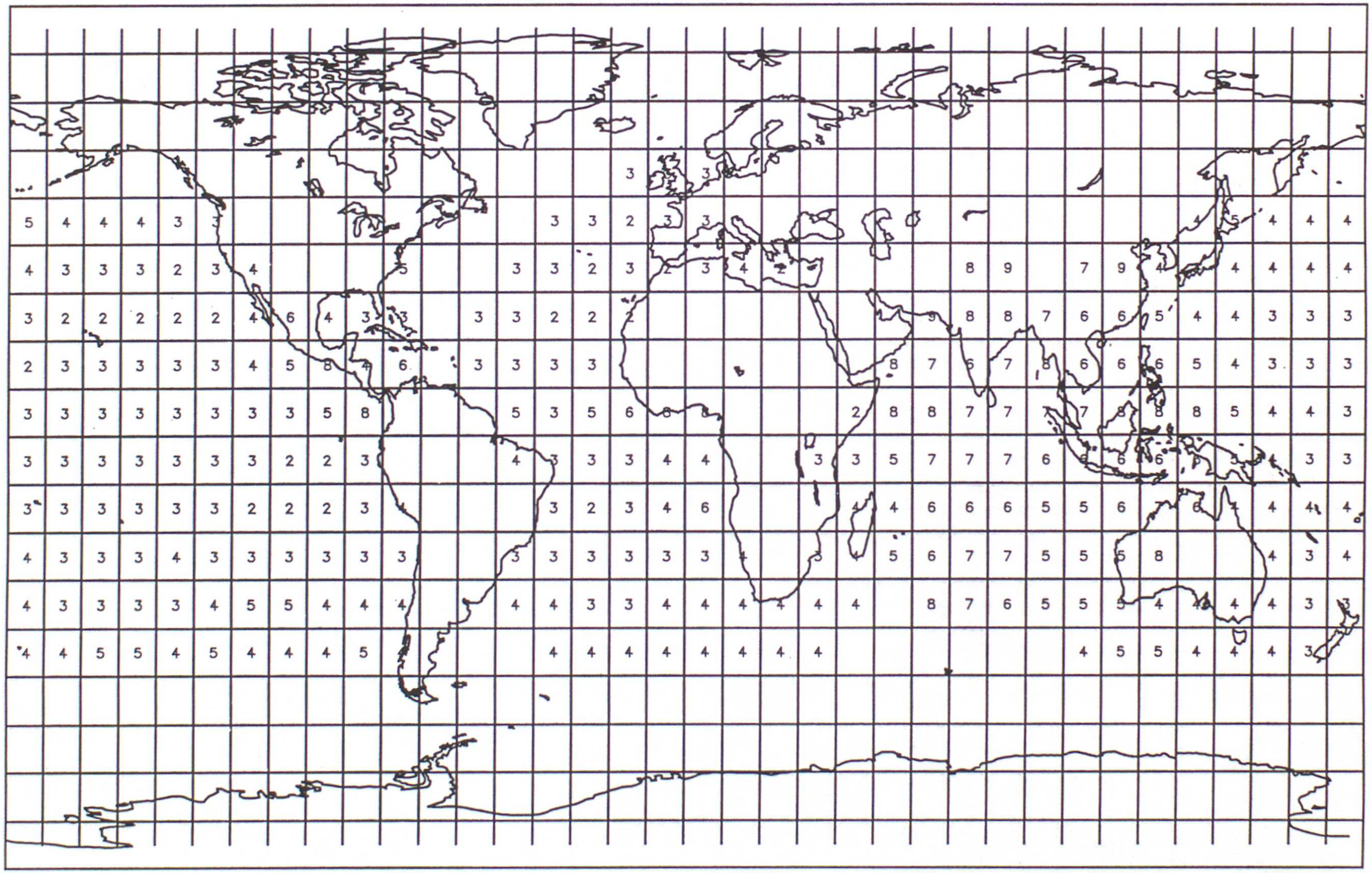
FIGURE 12



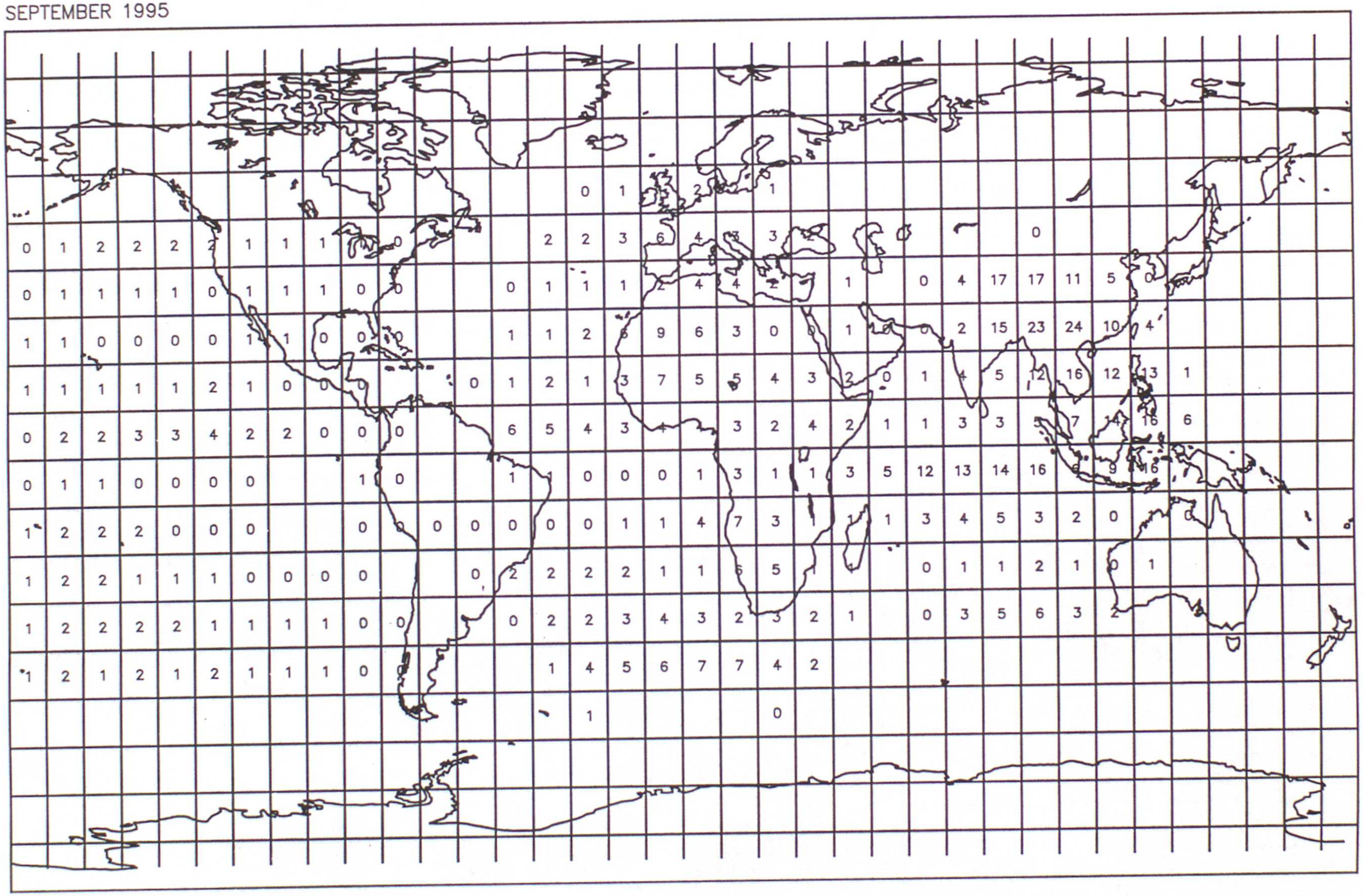
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
SEPTEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


.5 –.6
–1.5 .0 –.7 .0 .3 –.2 –.7 .4 .4 .1 1.4 .2 .9 –1.1 –.3 –.8
.1 –.3 –.3 –.2 –.2 –1.1 –1.4 –2.7 –.4 .6 .2 .5 .9 1.3 .0 .6 5.8 7.1 4.9 6.1 .0 .1 .0 .0 .2
.3 –.5 –.2 –.2 –.2 –.2 –.3 2.2 –1.3 –1.5 –1.0 .1 .1 .1 .4 –.2 5.8 5.0 5.1 4.2 2.7 –.5 1.2 .7 –.1 –.9 –.7 –.3
.2 –.5 –.5 –.6 –.6 –.5 –.9 –.8 1.0 –.8 –.7 .9 .2 –.2 .2 .4 .9 1.1 3.2 1.6 3.3 2.2 .1 .4 –.3 .0 .2 .2
.4 .3 –1.1 –.2 .0 .1 .0 .3 .3 –1.0 .6 –.2 .6 1.9 2.9 1.4 –.8 2.1 3.0 1.0 .6 1.3 .8 2.9 2.7 3.2 .6 .8 .2 .0
.6 .0 –.8 –.3 .1 –.4 –.2 –.2 –.5 –.3 .1 .1 –.1 .3 .8 1.0 .9 –.8 .1 1.4 .9 2.3 2.5 3.1 3.1 .9 .9 2.0 .9 –.2 .5
.1 –1.3 –.8 –.7 –.7 –.9 –.6 .0 .4 1.3 2.8 –.1 –.3 –.2 1.0 2.3 –.3 –.6 1.6 1.8 1.7 1.2 1.6 2.6 1.0 1.2 1.1 1.3 1.2 1.2
.7 –1.0 –.6 –.1 .0 –.6 –.4 .0 –.1 –.4 .4 .6 .1 .4 .5 .7 .3 .1 .1 .7 .4 3.0 4.2 4.1 1.6 1.1 1.1 3.9 .4 1.1 1.2
.2 –.3 .0 .1 .2 .3 .8 –.1 .4 .4 .4 .4 .6 .3 .2 .0 .2 .0 .4 –.1 .8 1.4 1.5 1.1 .0 –.2 .1 .6 .2 .7 .8 .8 .5
.1 .7 .8 .6 .6 .3 .3 .1 .8 .8 –1.0 1.1 .5 .7 .4 .6 .3 .0 .3 –.2 .4 .4 –.1 .1 .2 –.2

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
SEPTEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

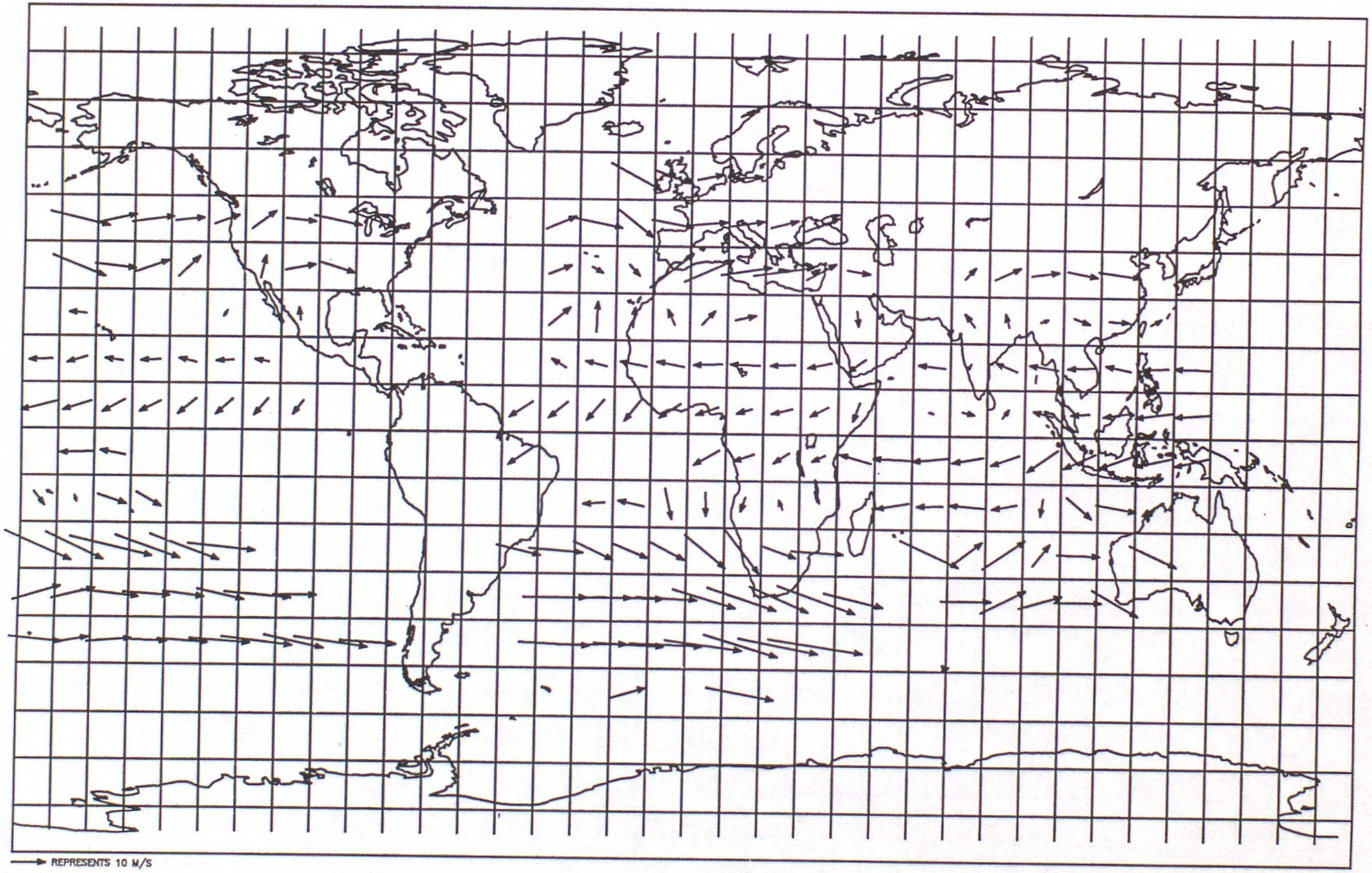


AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
SEPTEMBER 1995


0 1 2 1
0 1 2 2 2 2 1 1 1 0 2 2 3 6 4 3 3 0
0 1 1 1 1 0 1 1 1 0 0 0 1 1 1 2 4 4 2 1 0 4 17 17 11 5 0
1 1 0 0 0 0 1 1 0 0 0 1 1 2 6 9 6 3 0 0 1 0 0 2 15 23 24 10 4
1 1 1 1 1 2 1 0 0 0 0 1 2 1 3 7 5 5 4 3 2 0 1 4 5 12 16 12 13 1
0 2 2 3 3 4 2 2 0 0 0 6 5 4 3 4 3 2 4 2 1 1 3 3 5 7 14 16 6
0 1 1 0 0 0 0 1 0 1 1 0 0 0 1 3 1 1 3 5 12 13 14 16 6 9 16
1 2 2 2 0 0 0 0 0 0 0 0 0 0 1 1 4 7 3 1 1 1 3 4 5 3 2 0 0
1 2 2 1 1 1 0 0 0 0 0 2 2 2 2 1 1 6 5 1 1 0 1 1 2 1 0 1
1 2 2 2 2 1 1 1 1 0 0 0 2 2 3 4 3 2 3 2 1 0 3 5 6 3 2
1 2 1 2 1 2 1 1 1 0 0 1 4 5 6 7 7 4 2
1 0

SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
SEPTEMBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 16


REPRESENTS 10 M/S

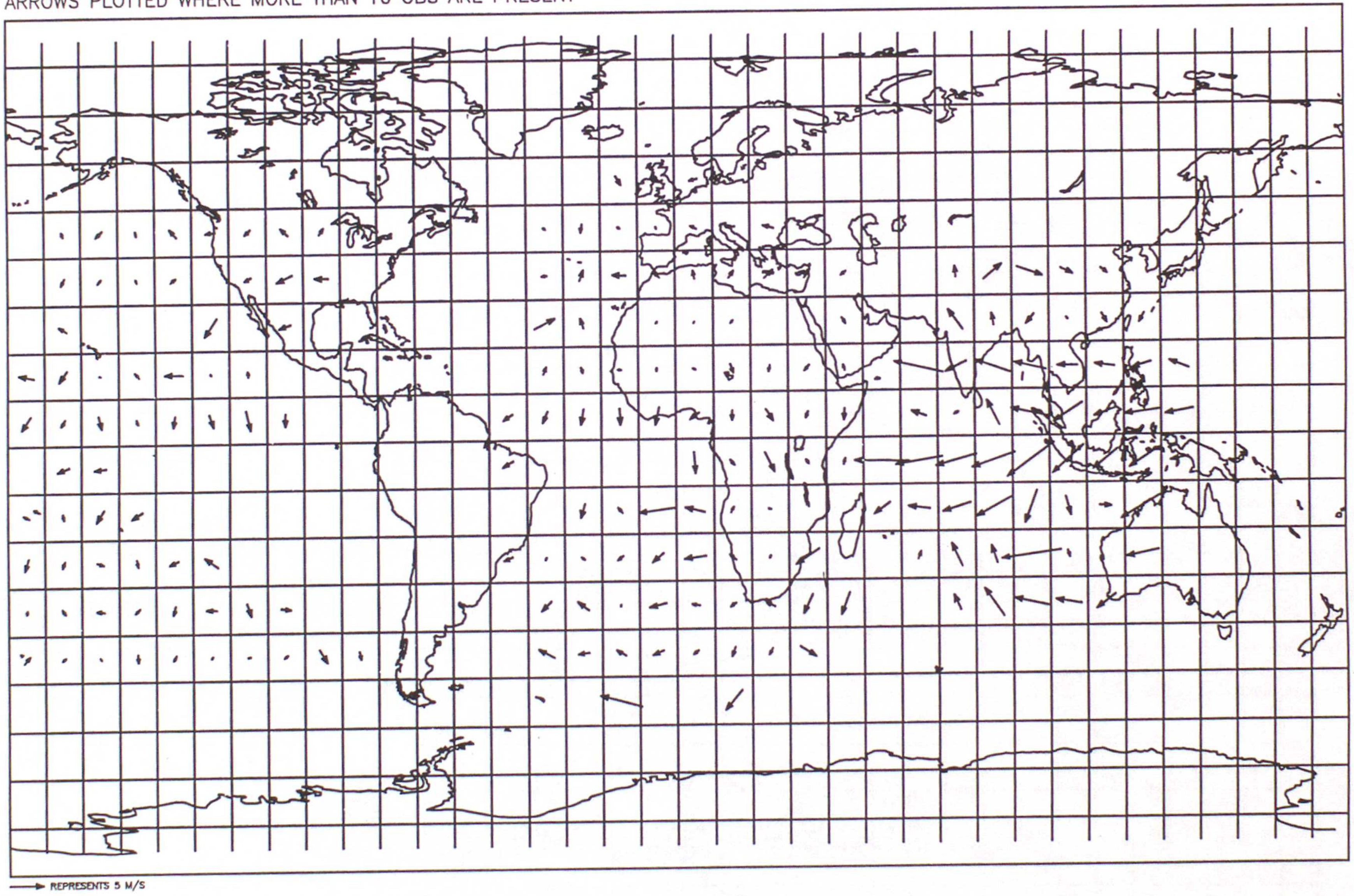
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA

SEPTEMBER 1995

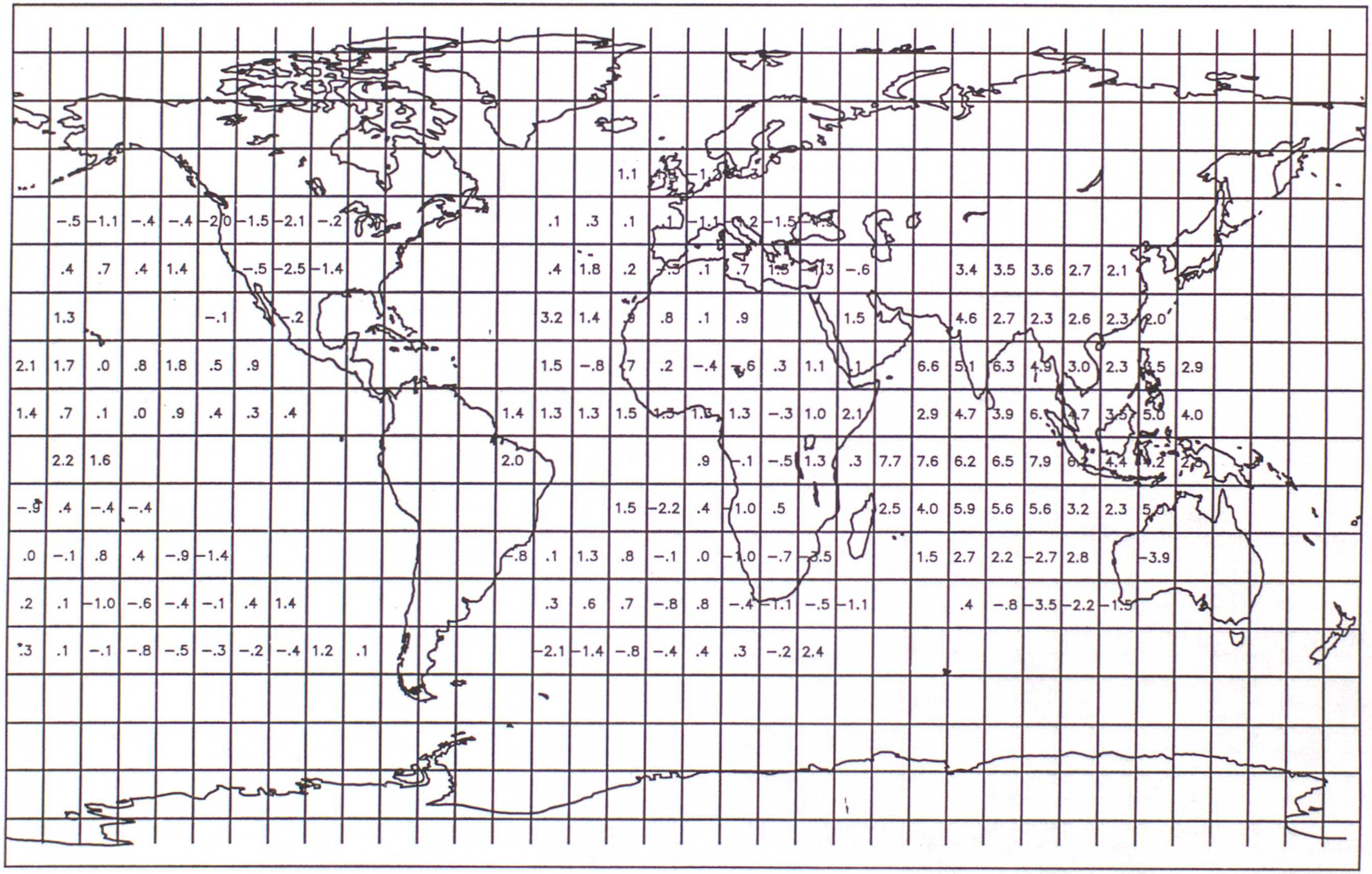
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

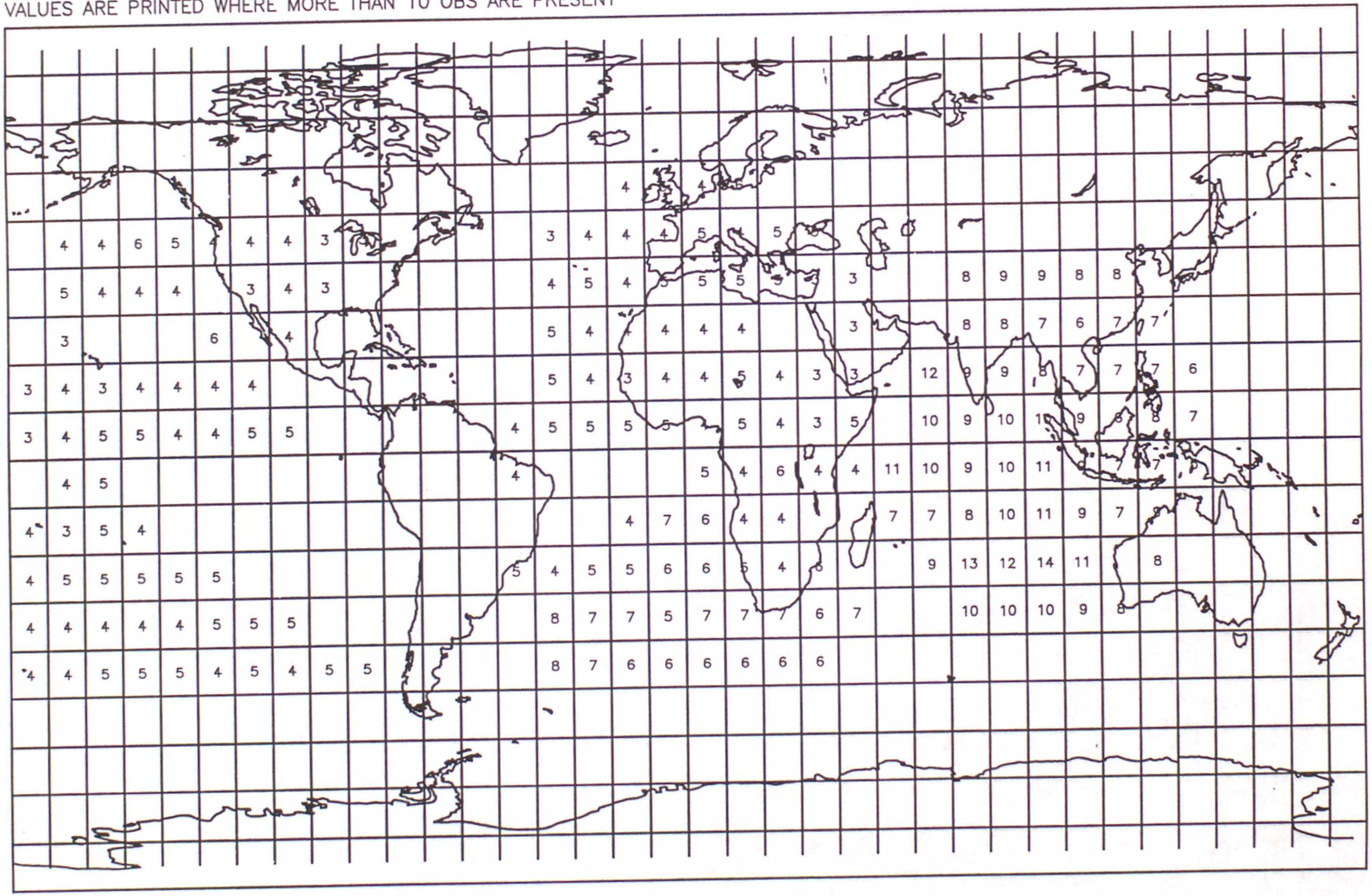
FIGURE 17



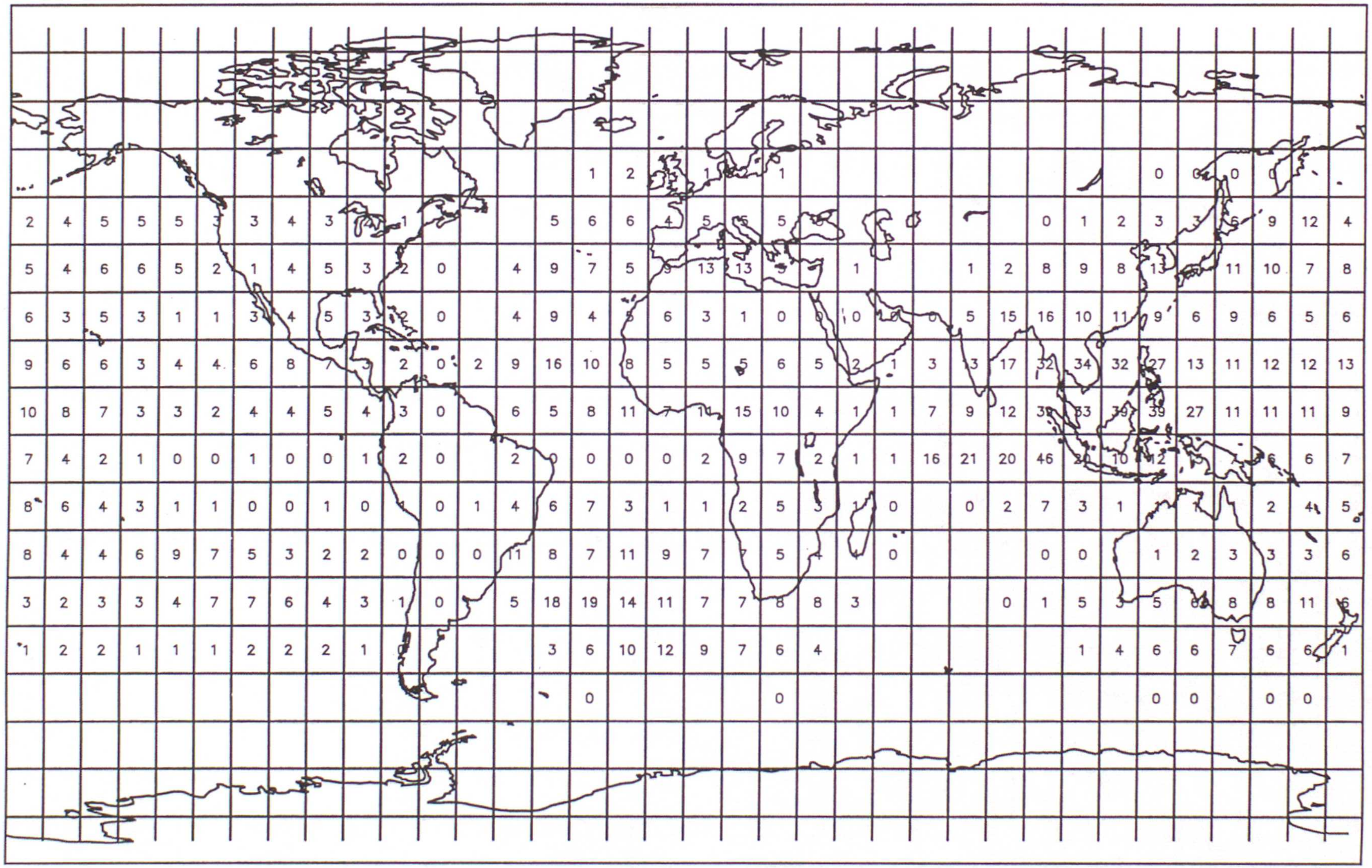
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
SEPTEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


1.1 -1.2 -.3
-.5 -1.1 -.4 -.4 -2.0 -1.5 -2.1 -.2 .1 .3 .1 .1 -1.1 -1.2 -1.5 -1.3
.4 .7 .4 1.4 -.5 -2.5 -1.4 .4 1.8 .2 -.3 .1 .7 1.5 -1.3 -.6 3.4 3.5 3.6 2.7 2.1
1.3 -.1 -.2 3.2 1.4 .9 .8 .1 .9 1.5 4.6 2.7 2.3 2.6 2.3 2.0
2.1 1.7 .0 .8 1.8 .5 .9 1.5 -.8 .7 .2 -.4 .6 .3 1.1 .1 6.6 5.1 6.3 4.9 3.0 2.3 3.5 2.9
1.4 .7 .1 .0 .9 .4 .3 .4 1.4 1.3 1.3 1.5 1.5 1.3 1.3 -.3 1.0 2.1 2.9 4.7 3.9 6. 4.7 3.5 5.0 4.0
2.2 1.6 2.0 .9 -.1 -.5 1.3 .3 7.7 7.6 6.2 6.5 7.9 6.2 4.4 4.2 2.8
-.9 .4 -.4 -.4 1.5 -2.2 .4 -1.0 .5 2.5 4.0 5.9 5.6 5.6 3.2 2.3 5.0
.0 -.1 .8 .4 -.9 -1.4 -.8 .1 1.3 .8 -.1 .0 -1.0 -.7 -3.5 1.5 2.7 2.2 -2.7 2.8 -3.9
.2 .1 -1.0 -.6 -.4 -.1 .4 1.4 .3 .6 .7 -.8 .8 -.4 -1.1 -.5 -1.1 .4 -.8 -3.5 -2.2 -1.5
.3 .1 -.1 -.8 -.5 -.3 -.2 -.4 1.2 .1 -2.1 -1.4 -.8 -.4 .4 .3 -.2 2.4

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
SEPTEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

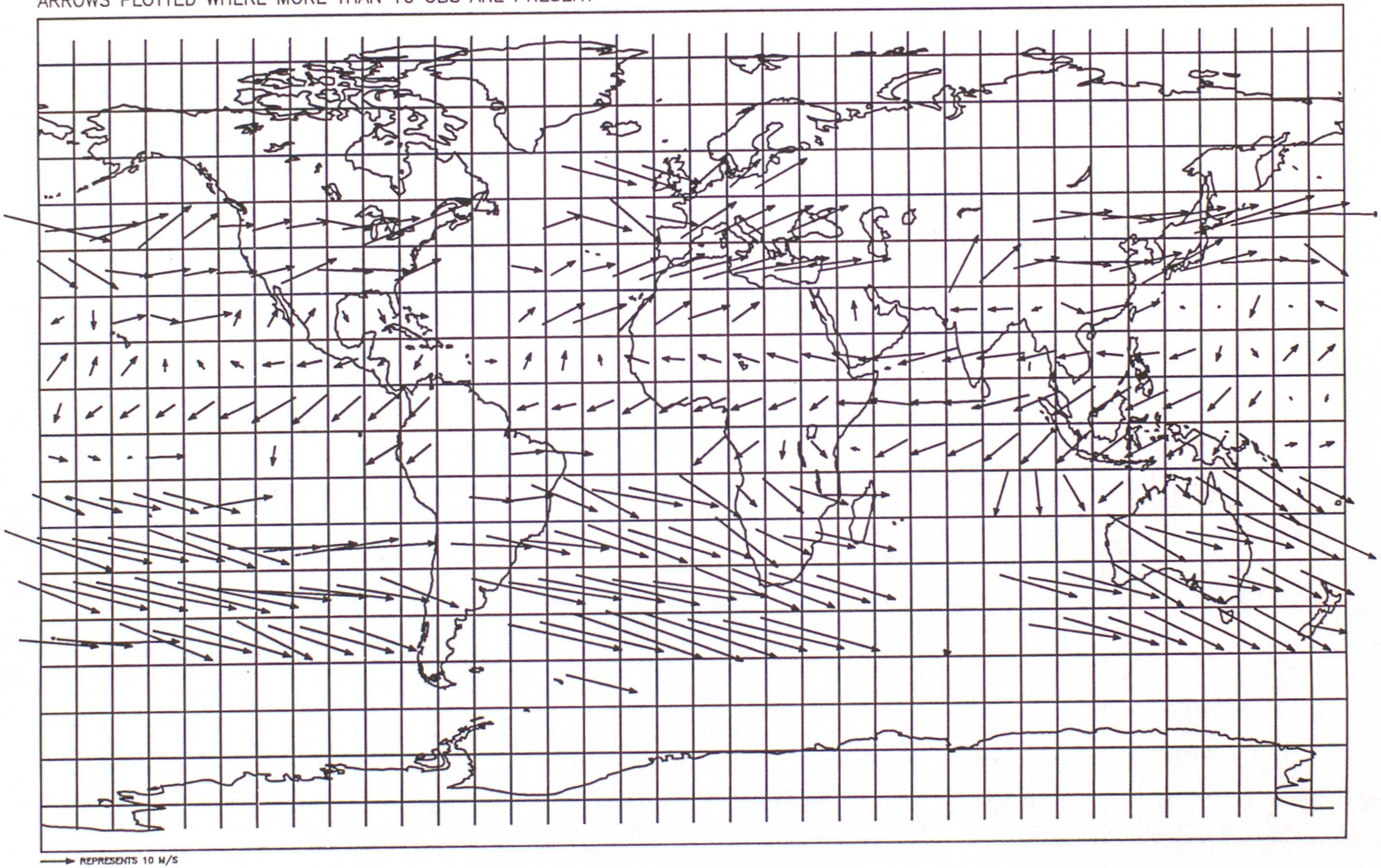

4 4
4 4 6 5 4 4 4 3 3 4 4 4 5 4 5
5 4 4 4 3 4 3 4 5 4 5 5 5 5 3 3 8 9 9 8 8
3 6 4 5 4 4 4 4 4 3 8 8 7 6 7 7
3 4 3 4 4 4 4 5 4 3 4 4 5 4 3 3 12 9 9 8 7 7 7 6
3 4 5 5 4 4 5 5 4 5 5 5 5 5 4 3 5 10 9 10 10 9 8 8 7
4 5 4 5 4 6 4 4 11 10 9 10 11 9 7 7
4 3 5 4 4 7 6 4 4 7 7 8 10 11 9 7 9
4 5 5 5 5 5 5 4 5 5 6 6 5 4 6 9 13 12 14 11 8
4 4 4 4 4 5 5 5 8 7 7 5 7 7 7 6 7 10 10 10 9 8
4 4 5 5 5 4 5 4 5 5 8 7 6 6 6 6 6 6

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
SEPTEMBER 1995


1 2 1 2 1 0 0 0 0
2 4 5 5 5 3 3 4 3 1 5 6 6 4 5 5 5 6 0 1 2 3 3 6 9 12 4
5 4 6 6 5 2 1 4 5 3 2 0 4 9 7 5 9 13 13 5 1 1 2 8 9 8 13 11 10 7 8
6 3 5 3 1 1 3 4 5 3 2 0 4 9 4 5 6 3 1 0 0 0 0 0 5 15 16 10 11 9 6 9 6 5 6
9 6 6 3 4 4 6 8 7 3 2 0 2 9 16 10 8 5 5 5 6 5 2 1 3 13 17 32 34 32 27 13 11 12 12 13
10 8 7 3 3 2 4 4 5 4 3 0 6 5 8 11 7 11 15 10 4 1 1 7 9 12 39 33 39 39 27 11 11 11 9
7 4 2 1 0 0 1 0 0 1 2 0 2 0 0 0 0 2 9 7 2 1 1 16 21 20 46 20 10 12 13 7 6 6 7
8 6 4 3 1 1 0 0 1 0 1 0 1 4 6 7 3 1 1 2 5 3 1 0 0 2 7 3 1 1 1 2 4 5
8 4 4 6 9 7 5 3 2 2 0 0 0 11 8 7 11 9 7 7 5 4 4 0 0 0 1 2 3 3 3 6
3 2 3 3 4 7 7 6 4 3 1 0 5 18 19 14 11 7 7 8 8 3 0 1 5 3 5 6 8 8 11 6
1 2 2 1 1 1 2 2 2 1 3 6 10 12 9 7 6 4 1 4 6 6 7 6 6 1
0 0 0 0 0 0

SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA
SEPTEMBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21


REPRESENTS 10 M/S

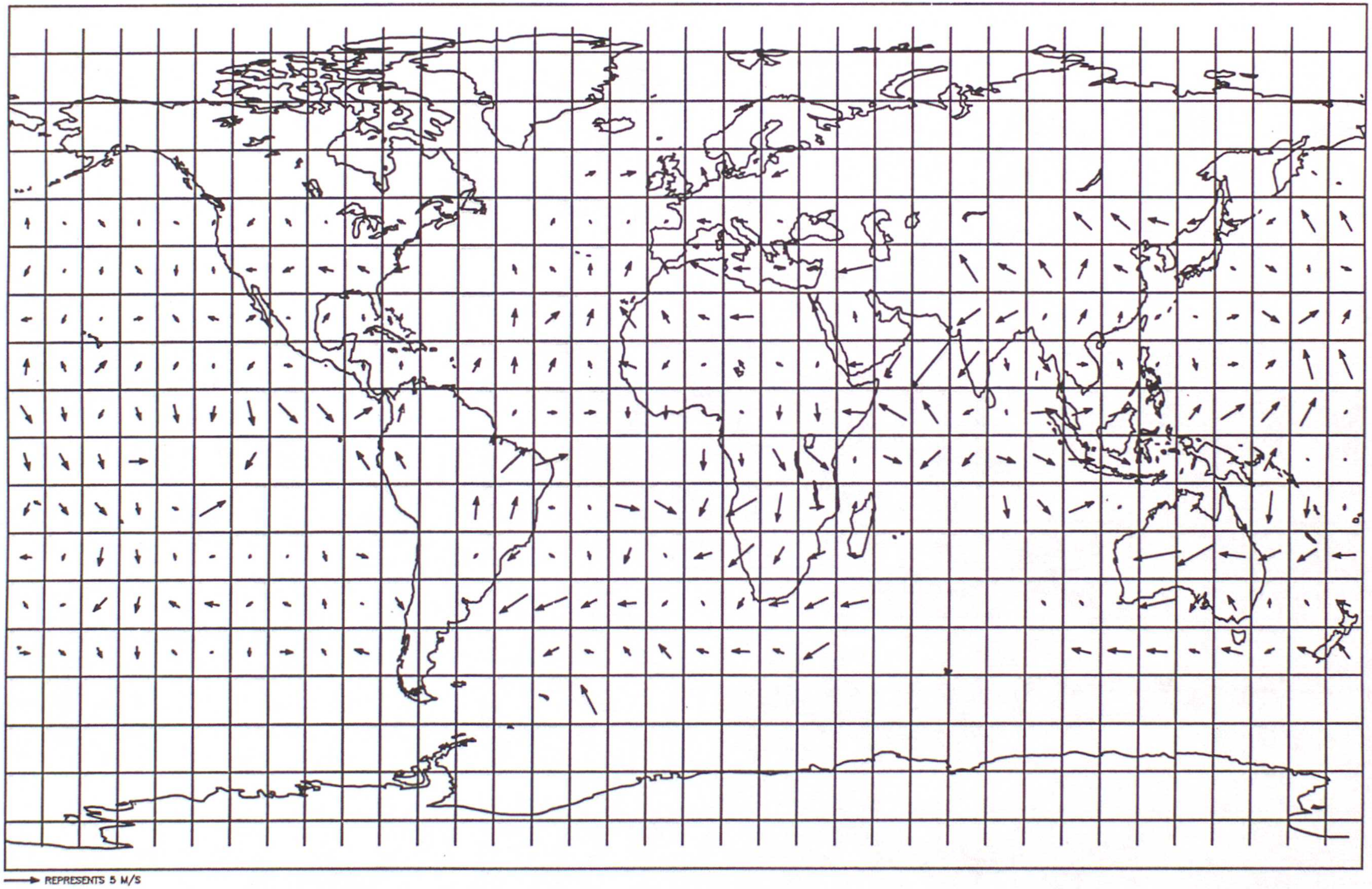
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 101–400 HPA

SEPTEMBER 1995

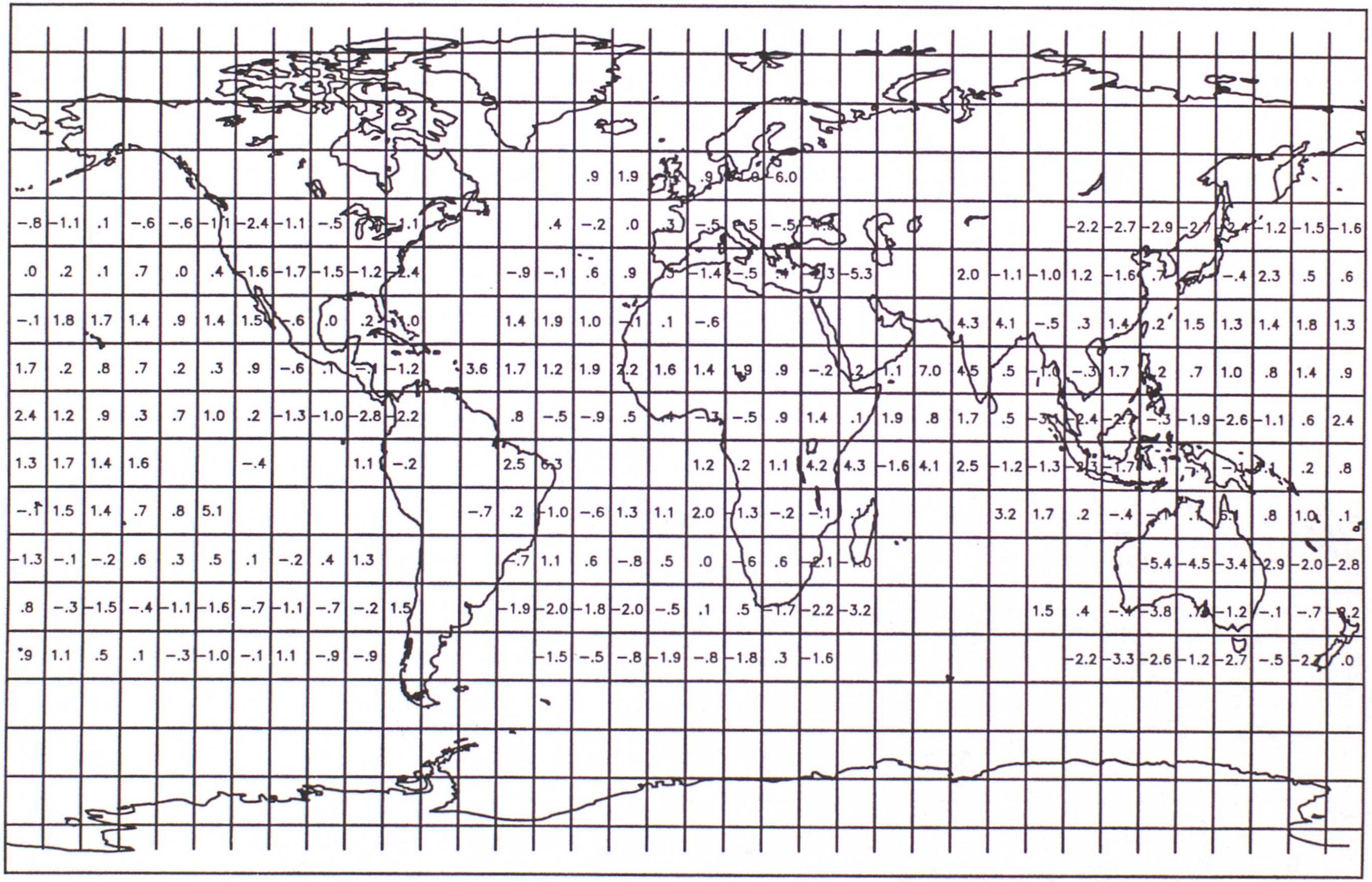
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

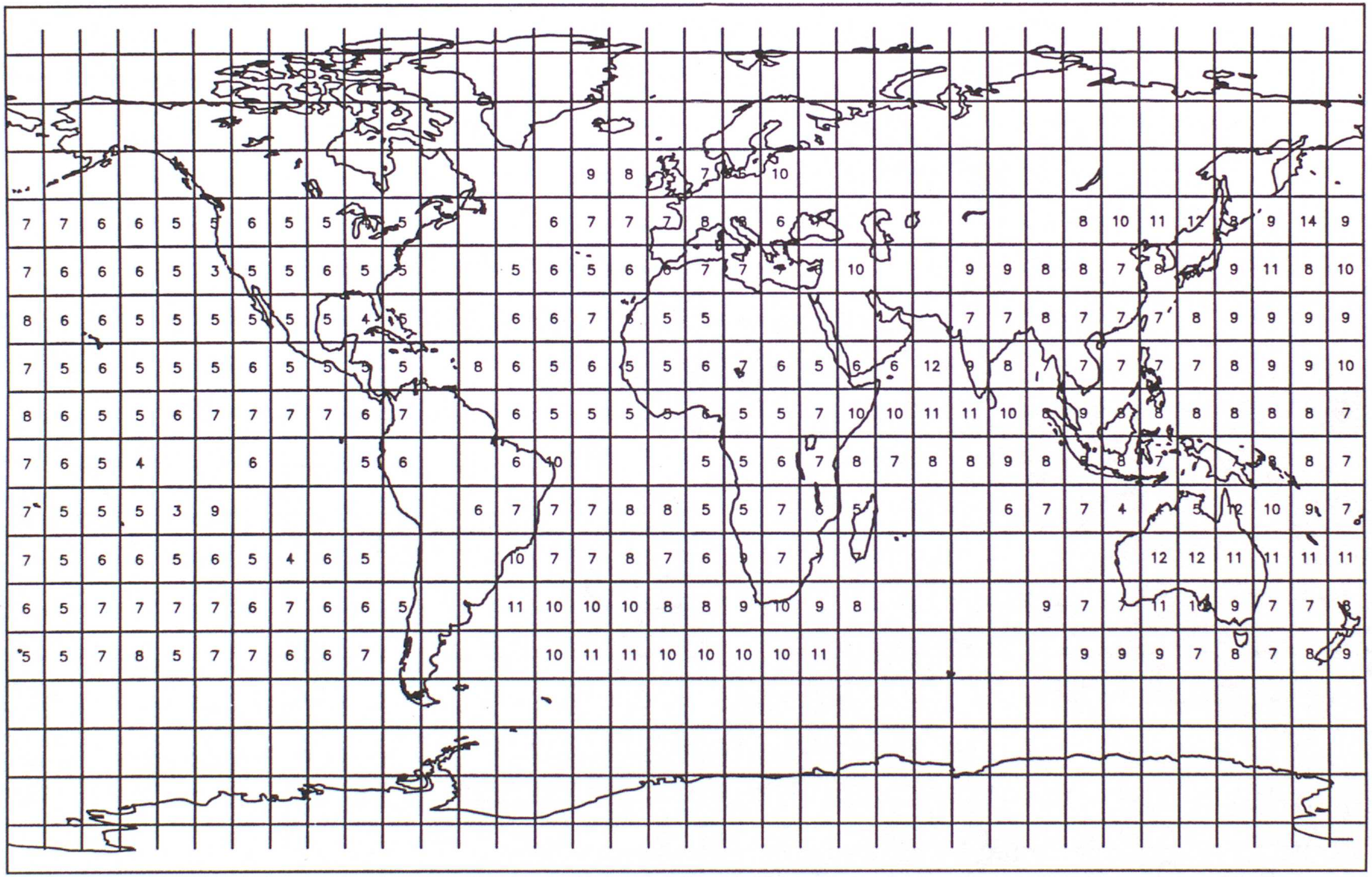
FIGURE 22



SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
SEPTEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


.9 1.9 .9 -6.0
-.8 -1.1 .1 -.6 -.6 -1.1 -2.4 -1.1 -.5 -1.1 .4 -.2 .0 .3 -.5 -.5 -.5 -2.2 -2.7 -2.9 -2.7 -2.4 -1.2 -1.5 -1.6
.0 .2 .1 .7 .0 .4 -1.6 -1.7 -1.5 -1.2 -2.4 -.9 -.1 .6 .9 -1.4 -.5 -2.3 -5.3 2.0 -1.1 -1.0 1.2 -1.6 -.4 2.3 .5 .6
-.1 1.8 1.7 1.4 .9 1.4 1.5 -.6 .0 .2 -1.0 1.4 1.9 1.0 -.1 .1 -.6 4.3 4.1 -.5 .3 1.4 .2 1.5 1.3 1.4 1.8 1.3
1.7 .2 .8 .7 .2 .3 .9 -.6 .1 -.1 -1.2 3.6 1.7 1.2 1.9 2.2 1.6 1.4 1.9 .9 -.2 .2 1.1 7.0 4.5 .5 -1.0 -.3 1.7 .2 .7 1.0 .8 1.4 .9
2.4 1.2 .9 .3 .7 1.0 .2 -1.3 -1.0 -2.8 -2.2 .8 -.5 -.9 .5 -.4 -.3 -.5 .9 1.4 .1 1.9 .8 1.7 .5 -.3 -2.4 -2.7 -.3 -1.9 -2.6 -1.1 .6 2.4
1.3 1.7 1.4 1.6 -.4 1.1 -.2 2.5 6.3 1.2 .2 1.1 4.2 4.3 -1.6 4.1 2.5 -1.2 -1.3 -2.3 -1.7 -.1 -.1 -1.1 .2 .8
-.1 1.5 1.4 .7 .8 5.1 -.7 .2 -1.0 -.6 1.3 1.1 2.0 -1.3 -.2 -.1 .1 3.2 1.7 .2 -.4 -.1 .1 5.1 .8 1.0 .1
-1.3 -.1 -.2 .6 .3 .5 .1 -.2 .4 1.3 -.7 1.1 .6 -.8 .5 .0 -.6 .6 -2.1 -1.0 -5.4 -4.5 -3.4 -2.9 -2.0 -2.8
.8 -.3 -1.5 -.4 -1.1 -1.6 -.7 -1.1 -.7 -.2 1.5 -1.9 -2.0 -1.8 -2.0 -.5 .1 .5 -1.7 -2.2 -3.2 1.5 .4 -.4 -3.8 .7 -1.2 -.1 -.7 -3.2
.9 1.1 .5 .1 -.3 -1.0 -.1 1.1 -.9 -.9 -1.5 -.5 -.8 -1.9 -.8 -1.8 .3 -1.6 -2.2 -3.3 -2.6 -1.2 -2.7 -.5 -2.2 .0

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
SEPTEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


9 8 7 10
7 7 6 6 5 5 6 5 5 4 5 6 7 7 7 8 8 6 7 8 10 11 12 8 9 14 9
7 6 6 6 5 3 5 5 6 5 5 5 6 5 6 6 7 7 7 6 10 9 9 8 8 7 8 9 11 8 10
8 6 6 5 5 5 5 5 5 4 5 6 6 7 6 5 5 7 7 8 7 7 7 8 9 9 9 9
7 5 6 5 5 5 6 5 5 5 5 8 6 5 6 5 5 6 7 6 5 6 6 12 9 8 7 7 7 7 7 8 9 9 10
8 6 5 5 6 7 7 7 7 6 7 6 5 5 5 5 6 5 5 7 10 10 11 11 10 8 9 8 8 8 8 8 8 7
7 6 5 4 6 5 6 6 10 5 5 6 7 8 7 8 8 9 8 8 7 8 8 7
7 5 5 5 3 9 6 7 7 7 8 8 5 5 7 6 5 6 7 7 4 5 12 10 9 7
7 5 6 6 5 6 5 4 6 5 10 7 7 8 7 6 9 7 7 7 12 12 11 11 11 11
6 5 7 7 7 7 6 7 6 6 5 11 10 10 10 8 8 9 10 9 8 9 7 7 11 10 9 7 7 8
5 5 7 8 5 7 7 6 6 7 10 11 11 10 10 10 10 11 9 9 9 7 8 7 8 9

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH:September, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-12, NOAA-14 500 km.

Standard of comparison :Background field from Bracknell global model.

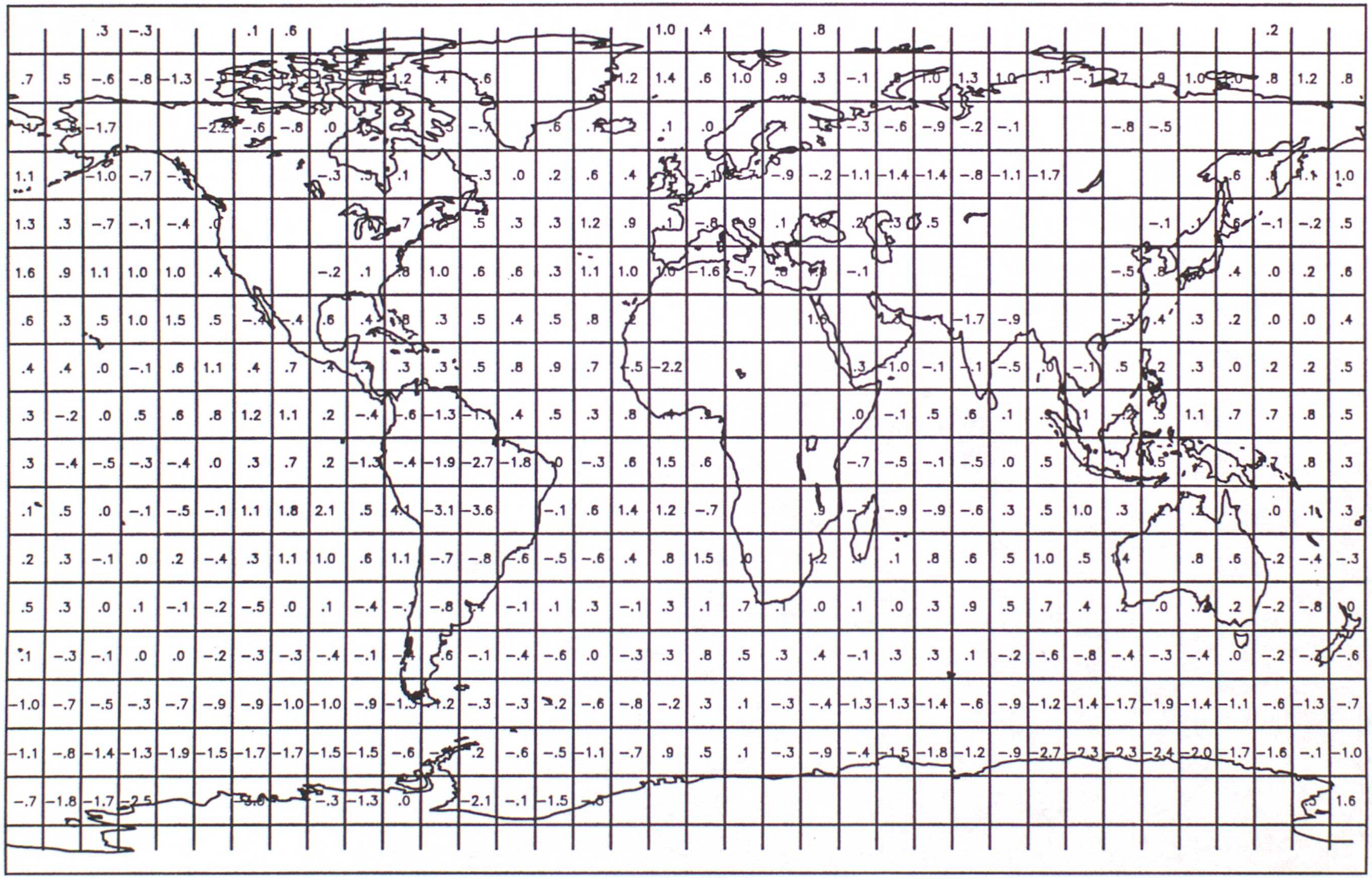
Selection Criteria :All SATEM soundings where number of observations > 30.

Data Extracted :Layer:850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

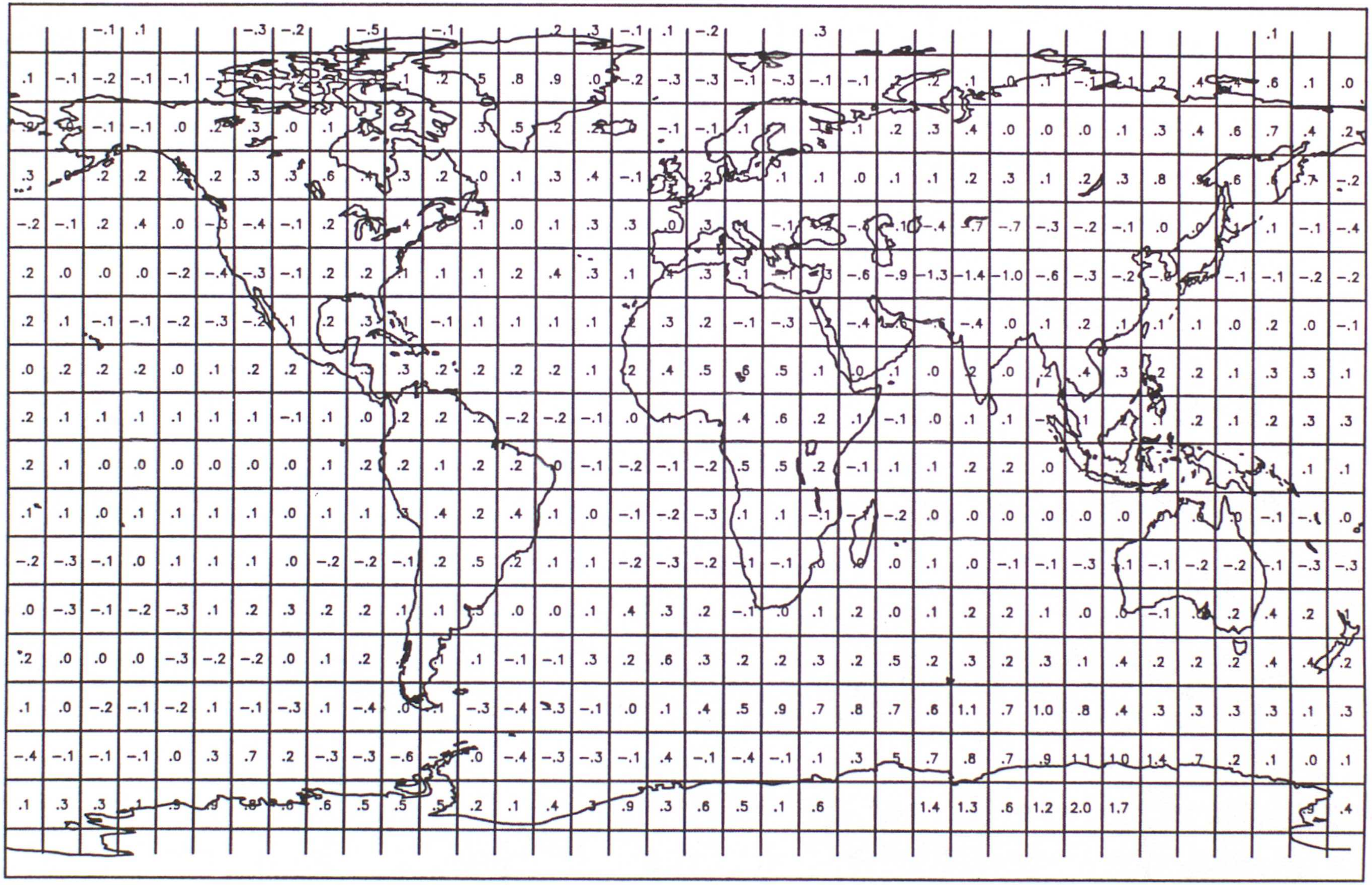
:Mean observation minus background temperature differences

500 KM SATEMS : MEAN O−B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
SEPTEMBER 1995
NOAA−12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

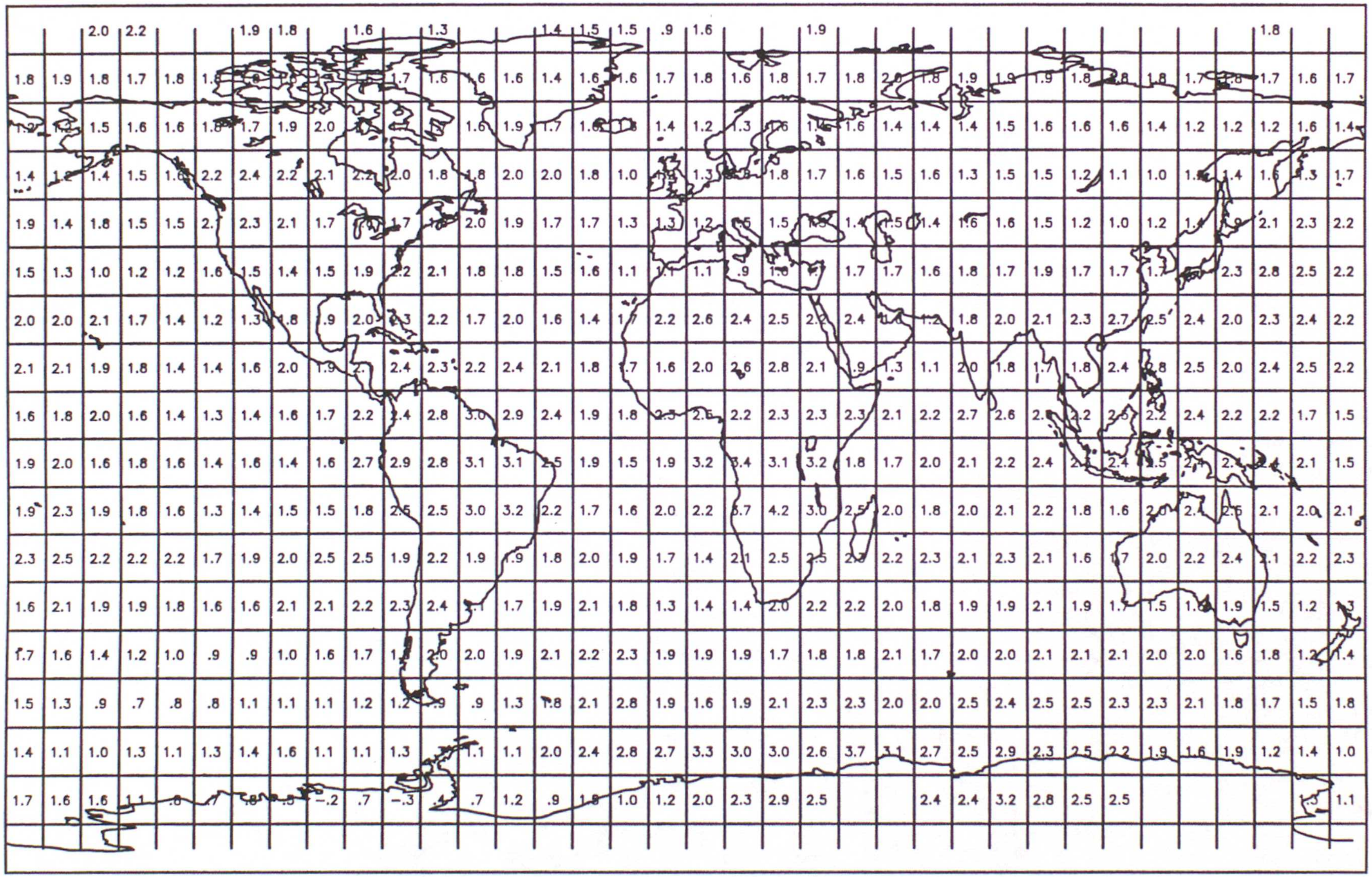
FIGURE 25


.3 −.3 .1 .6 1.0 .4 .8 .2
.7 .5 −.6 −.8 −1.3 1.2 .4 .6 1.2 1.4 .6 1.0 .9 .3 −.1 1.0 1.3 1.0 .1 −.1 .7 .9 1.0 .8 1.2 .8
−1.7 −2.2 −.6 −.8 .0 .6 .1 .0 −.3 −.6 −.9 −.2 −.1 −.8 −.5
1.1 −1.0 −.7 −.3 .1 −.3 .0 .2 .6 .4 −.9 −.2 −1.1 −1.4 −1.4 −.8 −1.1 −1.7 .6 1.0
1.3 .3 −.7 −.1 −.4 .7 .5 .3 .3 1.2 .9 .1 .9 .1 .2 .3 .5 −.1 −.1 −.2 .5
1.6 .9 1.1 1.0 1.0 .4 −.2 .1 1.0 .6 .6 .3 1.1 1.0 −1.6 −.7 −.1 −.5 .4 .0 .2 .6
.6 .3 .5 1.0 1.5 .5 −.4 .6 .3 .5 .4 .5 .8 −1.7 −.9 .3 .2 .0 .0 .4
.4 .4 .0 −.1 .6 1.1 .4 .7 .3 .3 .5 .8 .9 .7 −.5 −2.2 .3 −1.0 −.1 −.1 −.5 −.1 .5 .3 .0 .2 .2 .5
.3 −.2 .0 .5 .6 .8 1.2 1.1 .2 −.4 −.6 −1.3 .4 .5 .3 .8 .0 −.1 .5 .6 .1 .1 1.1 .7 .7 .8 .5
.3 −.4 −.5 −.3 −.4 .0 .3 .7 .2 −1.3 −.4 −1.9 −2.7 −1.8 −.3 .6 1.5 .6 −.7 −.5 −.1 −.5 .0 .5 .8 .3
.1 .5 .0 −.1 −.5 −.1 1.1 1.8 2.1 .5 −3.1 −3.6 −.1 .6 1.4 1.2 −.7 −.9 −.9 −.6 .3 .5 1.0 .3 .0 .3
.2 .3 −.1 .0 .2 −.4 .3 1.1 1.0 .6 1.1 −.7 −.8 −.6 −.5 −.6 .4 .8 1.5 .1 .8 .6 .5 1.0 .5 .8 .6 −.2 −.4 −.3
.5 .3 .0 .1 −.1 −.2 −.5 .0 .1 −.4 −.8 −.1 .1 .3 −.1 .3 .1 .7 .0 .1 .0 .3 .9 .5 .7 .4 .0 .2 −.2 −.8
.1 −.3 −.1 .0 .0 −.2 −.3 −.3 −.4 −.1 .6 −.1 −.4 −.6 .0 −.3 .3 .8 .5 .3 .4 −.1 .3 .3 .1 −.2 −.6 −.8 −.4 −.3 −.4 .0 −.2 −.6
−1.0 −.7 −.5 −.3 −.7 −.9 −.9 −1.0 −1.0 −.9 −1.2 −.3 −.3 .2 −.6 −.8 −.2 .3 .1 −.3 −.4 −1.3 −1.3 −1.4 −.6 −.9 −1.2 −1.4 −1.7 −1.9 −1.4 −1.1 −.6 −1.3 −.7
−1.1 −.8 −1.4 −1.3 −1.9 −1.5 −1.7 −1.7 −1.5 −1.5 −.6 .2 −.6 −.5 −1.1 −.7 .9 .5 .1 −.3 −.9 −.4 −1.5 −1.8 −1.2 −.9 −2.7 −2.3 −2.3 −2.4 −2.0 −1.7 −1.6 −.1 −1.0
−.7 −1.8 −1.7 −2.5 −3.6 −.3 −1.3 .0 −2.1 −.1 −1.5 1.6

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
SEPTEMBER 1995 FIGURE 26
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

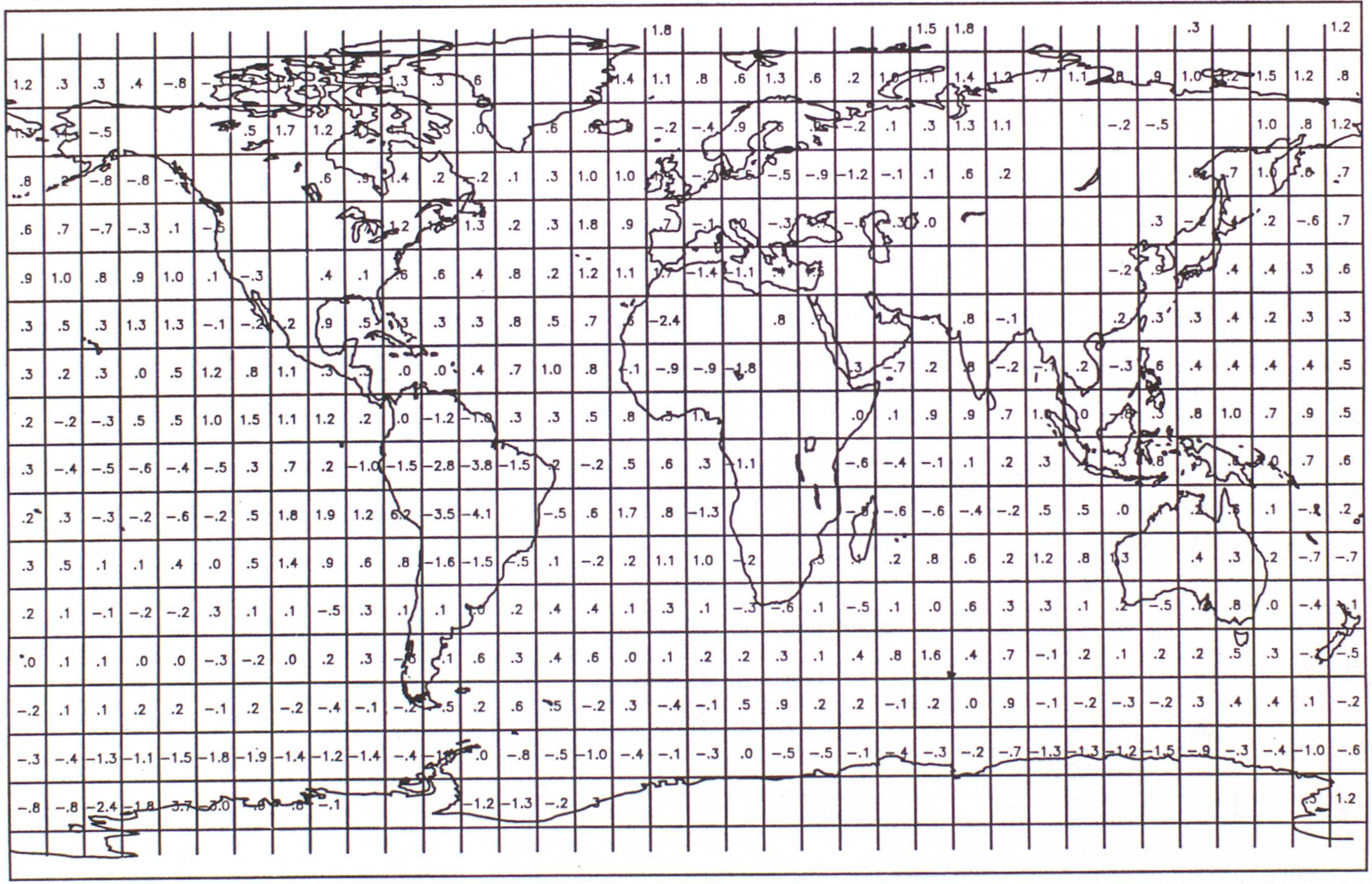

-.1 .1 -.3 -.2 -.5 -.1 .2 .3 -.1 .1 -.2 .3 .1
.1 -.1 -.2 -.1 -.1 .1 .2 .5 .8 .9 .0 -.2 -.3 -.3 -.1 -.3 -.1 -.1 .2 .2 .1 .0 .1 -.1 .1 .2 .4 .4 .6 .1 .0
.2 .0 -.1 -.1 .0 .2 .3 .0 .1 .3 .5 .2 .2 -.1 -.1 .1 .1 .1 .2 .3 .4 .0 .0 .0 .1 .3 .4 .6 .7 .4 .2
.3 .0 .2 .2 .2 .2 .3 .3 .6 .4 .3 .2 .0 .1 .3 .4 -.1 .2 .2 .1 .1 .0 .1 .1 .2 .3 .1 .2 .3 .8 .9 .6 .6 .7 -.2
-.2 -.1 .2 .4 .0 -.3 -.4 -.1 .2 .4 .1 .0 .1 .3 .3 .0 .3 .1 -.1 -.2 -.6 .10 -.4 .7 -.7 -.3 -.2 -.1 .0 .0 .1 .1 -.1 -.4
.2 .0 .0 .0 -.2 -.4 -.3 -.1 .2 .2 .1 .1 .1 .2 .4 .3 .1 .4 .3 .1 -.1 -.3 -.6 -.9 -1.3 -1.4 -1.0 -.6 -.3 -.2 -.8 -.1 -.1 -.2 -.2
.2 .1 -.1 -.1 -.2 -.3 -.2 .1 .2 .3 .1 -.1 .1 .1 .1 .1 .2 .3 .2 -.1 -.3 -.2 -.4 -.6 -.4 .0 .1 .2 .1 .1 .1 .0 .2 .0 -.1
.0 .2 .2 .2 .0 .1 .2 .2 .2 .3 .2 .2 .2 .2 .1 .2 .4 .5 .6 .5 .1 .0 .1 .0 .2 .0 .2 .4 .3 .2 .2 .1 .3 .3 .1
.2 .1 .1 .1 .1 .1 .1 -.1 .1 .0 .2 .2 .2 -.2 -.2 -.1 .0 .1 .4 .6 .2 .1 -.1 .0 .1 .1 -.1 .1 .2 .1 .2 .1 .2 .3 .3
.2 .1 .0 .0 .0 .0 .0 .0 .1 .2 .2 .1 .2 .2 .0 -.1 -.2 -.1 -.2 .5 .5 .2 -.1 .1 .1 .2 .2 .0 .2 .1 .1 .1
.1 .1 .0 .1 .1 .1 .1 .0 .1 .1 .3 .4 .2 .4 .1 .0 -.1 -.2 -.3 .1 .1 -.1 -.1 -.2 .0 .0 .0 .0 .0 .0 .0 .0 -.1 -.1 .0
-.2 -.3 -.1 .0 .1 .1 .1 .0 -.2 -.2 -.1 .2 .5 .2 .1 .1 -.2 -.3 -.2 -.1 -.1 .0 .0 .0 .1 .0 -.1 -.1 -.3 .1 -.1 -.2 -.2 -.1 -.3 -.3
.0 -.3 -.1 -.2 -.3 .1 .2 .3 .2 .2 .1 .1 .3 .0 .0 .1 .4 .3 .2 -.1 .0 .1 .2 .0 .1 .2 .2 .1 .0 .0 -.1 .3 .2 .4 .2 .1
.2 .0 .0 .0 -.3 -.2 -.2 .0 .1 .2 .1 .1 .1 -.1 -.1 .3 .2 .6 .3 .2 .2 .3 .2 .5 .2 .3 .2 .3 .1 .4 .2 .2 .2 .4 .4 .2
.1 .0 -.2 -.1 -.2 .1 -.1 -.3 .1 -.4 .0 .1 -.3 -.4 .3 -.1 .0 .1 .4 .5 .9 .7 .8 .7 .6 1.1 .7 1.0 .8 .4 .3 .3 .3 .3 .1 .3
-.4 -.1 -.1 -.1 .0 .3 .7 .2 -.3 -.3 -.6 .0 .0 -.4 -.3 -.3 -.1 .4 -.1 -.4 -.1 .1 .3 .5 .7 .8 .7 .9 1.1 1.0 1.4 .7 .2 .1 .0 .1
.1 .3 .3 .1 .9 .9 .8 .6 .6 .5 .5 .5 .2 .1 .4 .3 .9 .3 .6 .5 .1 .6 1.4 1.3 .6 1.2 2.0 1.7 .9 .4

500 KM SATEMS : MEAN O-B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
SEPTEMBER 1995 FIGURE 27
NOAA-12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

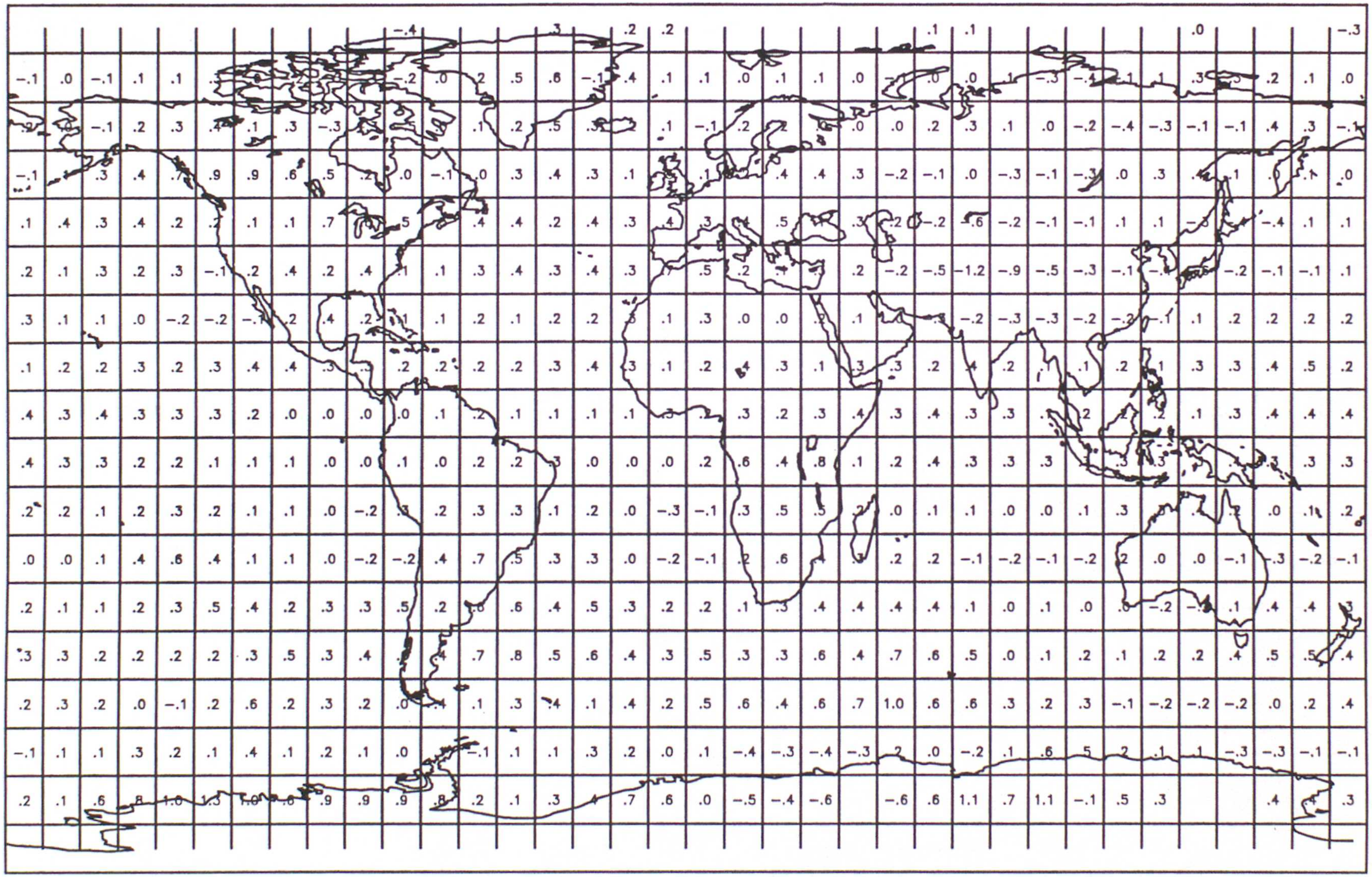


500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
SEPTEMBER 1995
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 28



500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
SEPTEMBER 1995
FIGURE 29
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


–.4 .3 .2 .2 .1 .1 .0 –.3
–.1 .0 –.1 .1 .1 [illegible] [illegible] [illegible] [illegible] [illegible] –.2 .0 .2 .5 .6 –.1 .4 .1 .1 .0 .1 .1 .0 [illegible] .0 .0 .1 –.3 –.4 .1 .1 .3 .5 .2 .1 .0
.2 .0 –.1 .2 .3 .4 .1 .3 –.3 [illegible] [illegible] [illegible] .1 .2 .5 .3 [illegible] .1 –.1 .2 .2 [illegible] .0 .0 .2 .3 .1 .0 –.2 –.4 –.3 –.1 –.1 .4 .3 –.1
–.1 [illegible] .3 .4 .7 .9 .9 .6 .5 .2 .0 –.1 .0 .3 .4 .3 .1 [illegible] .1 .4 .4 .3 –.2 –.1 .0 –.3 –.1 –.3 .0 .3 .4 .1 .0 .1 .0
.1 .4 .3 .4 .2 .2 .1 .1 .7 [illegible] .5 .4 .4 .2 .4 .3 .4 .3 .4 .5 .3 .2 –.2 –.6 –.2 –.1 –.1 .1 .1 –.3 –.4 .1 .1
.2 .1 .3 .2 .3 –.1 .2 .4 .2 .4 .1 .1 .3 .4 .3 .4 .3 .7 .5 .2 [illegible] [illegible] .2 –.2 –.5 –1.2 –.9 –.5 –.3 –.1 –.4 .6 –.2 –.1 –.1 .1
.3 .1 .1 .0 –.2 –.2 –.1 .2 .4 .2 .1 .1 .2 .1 .2 .2 .3 .1 .3 .0 .0 .2 .1 [illegible] .3 –.2 –.3 –.3 –.2 –.2 –.1 .1 .2 .2 .2 .2
.1 .2 .2 .3 .2 .3 .4 .4 .3 .3 .2 .2 .2 .2 .3 .4 .3 .1 .2 .4 .3 .1 .3 .3 .2 .4 .2 .1 .1 .2 .1 .3 .3 .4 .5 .2
.4 .3 .4 .3 .3 .3 .2 .0 .0 .0 .0 .1 .2 .1 .1 .1 .1 .3 .2 .3 .2 .3 .4 .3 .4 .3 .3 [illegible] .2 .2 .2 .1 .3 .4 .4 .4
.4 .3 .3 .2 .2 .1 .1 .1 .0 .0 .1 .0 .2 .2 .3 .0 .0 .0 .2 .6 .4 .8 .1 .2 .4 .3 .3 .3 [illegible] .3 .3 [illegible] [illegible] .3 .3 .3
.2 .2 .1 .2 .3 .2 .1 .1 .0 –.2 .3 .2 .3 .3 .1 .2 .0 –.3 –.1 .3 .5 .5 .2 .0 .1 .1 .0 .0 .1 .3 [illegible] [illegible] .2 .0 .1 .2
.0 .0 .1 .4 .6 .4 .1 .1 .0 –.2 –.2 .4 .7 .5 .3 .3 .0 –.2 –.1 .2 .6 [illegible] [illegible] .2 .2 –.1 –.2 –.1 –.2 .2 .0 .0 –.1 –.3 –.2 –.1
.2 .1 .1 .2 .3 .5 .4 .2 .3 .3 .5 .2 .6 .6 .4 .5 .3 .2 .2 .1 .3 .4 .4 .4 .4 .1 .0 .1 .0 .0 –.2 [illegible] .1 .4 .4 .3
.3 .3 .2 .2 .2 .2 .3 .5 .3 .4 [illegible] .4 .7 .8 .5 .6 .4 .3 .5 .3 .3 .6 .4 .7 .6 .5 .0 .1 .2 .1 .2 .2 .4 .5 .5 .4
.2 .3 .2 .0 –.1 .2 .6 .2 .3 .2 .0 .4 .1 .3 .4 .1 .4 .2 .5 .6 .4 .6 .7 1.0 .6 .6 .3 .2 .3 –.1 –.2 –.2 –.2 .0 .2 .4
–.1 .1 .1 .3 .2 .1 .4 .1 .2 .1 .0 –.1 .1 .1 .3 .2 .0 .1 –.4 –.3 –.4 –.3 .2 .0 –.2 .1 .6 .5 .2 .1 .1 –.3 –.3 –.1 –.1
.2 .1 .6 .8 1.0 1.3 1.0 .6 .9 .9 .9 .8 .2 .1 .3 .4 .7 .6 .0 –.5 –.4 –.6 –.6 .6 1.1 .7 1.1 –.1 .5 .3 .4 .4 .3

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
SEPTEMBER 1995
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 30

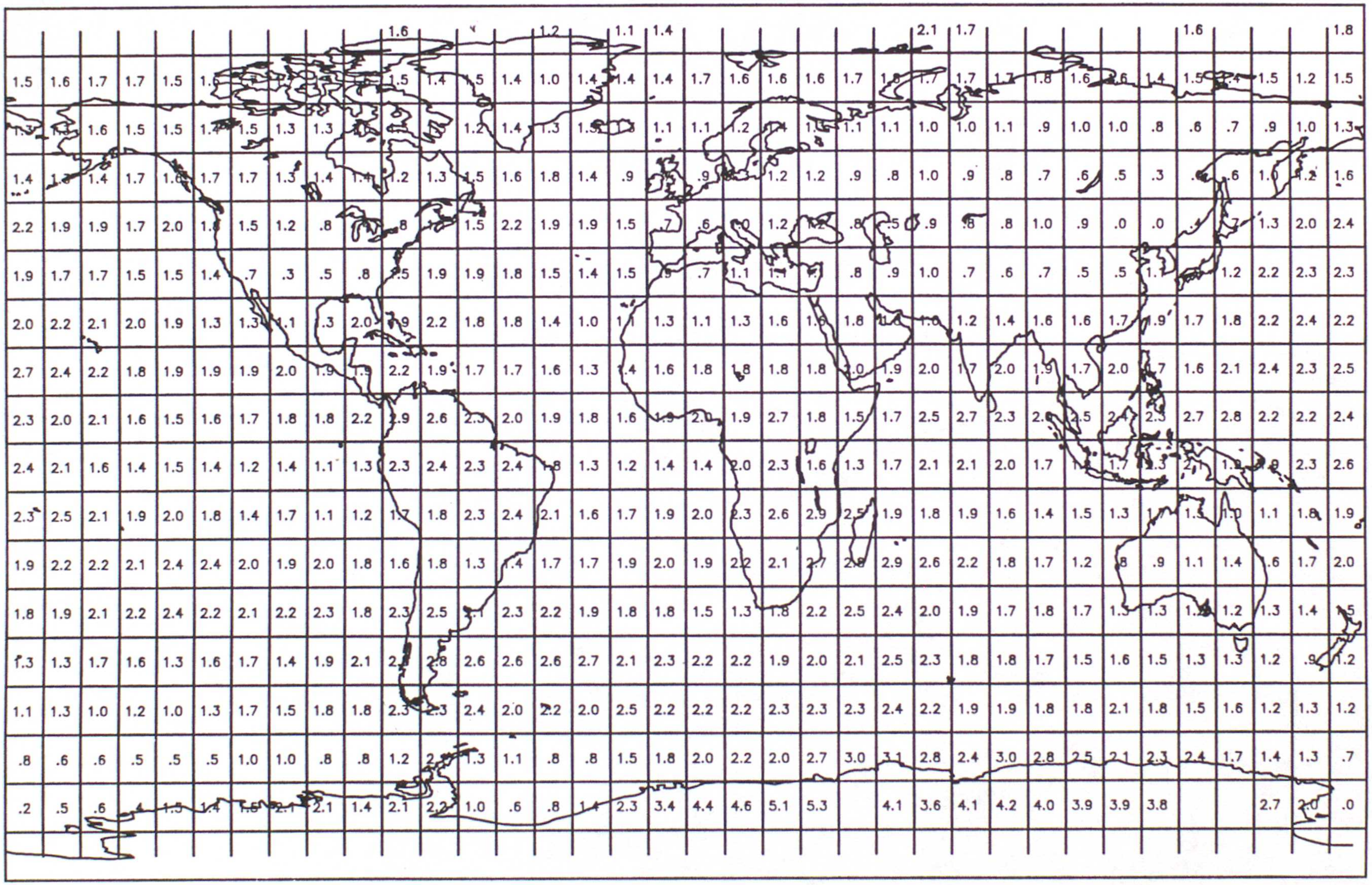

1.6 1.2 1.1 1.4 2.1 1.7 1.6 1.8
1.5 1.6 1.7 1.7 1.5 1.6 1.5 1.4 1.5 1.4 1.0 1.4 1.4 1.4 1.7 1.6 1.6 1.6 1.7 1.6 1.7 1.7 1.7 1.8 1.6 1.6 1.4 1.5 1.4 1.5 1.2 1.5
1.3 1.3 1.6 1.5 1.5 1.4 1.5 1.3 1.3 1.2 1.4 1.3 1.5 1.1 1.1 1.2 1.4 1.5 1.1 1.1 1.0 1.0 1.1 .9 1.0 1.0 .8 .6 .7 .9 1.0 1.3
1.4 1.3 1.4 1.7 1.6 1.7 1.7 1.3 1.4 1.4 1.2 1.3 1.5 1.6 1.8 1.4 .9 .9 1.2 1.2 .9 .8 1.0 .9 .8 .7 .6 .5 .3 .6 .6 1.0 1.2 1.6
2.2 1.9 1.9 1.7 2.0 1.8 1.5 1.2 .8 .8 1.5 2.2 1.9 1.9 1.5 .7 .6 1.2 1.2 .8 .5 .9 .8 .8 1.0 .9 .0 .0 .4 .7 1.3 2.0 2.4
1.9 1.7 1.7 1.5 1.5 1.4 .7 .3 .5 .8 .5 1.9 1.9 1.8 1.5 1.4 1.5 .7 1.1 1.1 1.1 .8 .9 1.0 .7 .6 .7 .5 .5 1.1 1.2 2.2 2.3 2.3
2.0 2.2 2.1 2.0 1.9 1.3 1.3 1.1 .3 2.0 1.9 2.2 1.8 1.8 1.4 1.0 1.1 1.3 1.1 1.3 1.6 1.6 1.8 1.6 1.0 1.2 1.4 1.6 1.6 1.7 1.9 1.7 1.8 2.2 2.4 2.2
2.7 2.4 2.2 1.8 1.9 1.9 1.9 2.0 1.9 1.5 2.2 1.9 1.7 1.7 1.6 1.3 1.4 1.6 1.8 1.8 1.8 1.8 2.0 1.9 2.0 1.7 2.0 1.9 1.7 2.0 1.7 1.6 2.1 2.4 2.3 2.5
2.3 2.0 2.1 1.6 1.5 1.6 1.7 1.8 1.8 2.2 2.9 2.6 2.3 2.0 1.9 1.8 1.6 1.9 2.0 1.9 2.7 1.8 1.5 1.7 2.5 2.7 2.3 2.6 2.5 2.4 2.3 2.7 2.8 2.2 2.2 2.4
2.4 2.1 1.6 1.4 1.5 1.4 1.2 1.4 1.1 1.3 2.3 2.4 2.3 2.4 1.8 1.3 1.2 1.4 1.4 2.0 2.3 1.6 1.3 1.7 2.1 2.1 2.0 1.7 1.7 1.3 1.2 .9 2.3 2.6
2.3 2.5 2.1 1.9 2.0 1.8 1.4 1.7 1.1 1.2 1.7 1.8 2.3 2.4 2.1 1.6 1.7 1.9 2.0 2.3 2.6 2.9 2.5 1.9 1.8 1.9 1.6 1.4 1.5 1.3 1.7 1.5 1.0 1.1 1.8 1.9
1.9 2.2 2.2 2.1 2.4 2.4 2.0 1.9 2.0 1.8 1.6 1.8 1.3 1.4 1.7 1.7 1.9 2.0 1.9 2.2 2.1 2.7 2.8 2.9 2.6 2.2 1.8 1.7 1.2 .8 .9 1.1 1.4 .6 1.7 2.0
1.8 1.9 2.1 2.2 2.4 2.2 2.1 2.2 2.3 1.8 2.3 2.5 2.1 2.3 2.2 1.9 1.8 1.8 1.5 1.3 1.8 2.2 2.5 2.4 2.0 1.9 1.7 1.8 1.7 1.3 1.3 1.2 1.2 1.3 1.4 .5
1.3 1.3 1.7 1.6 1.3 1.6 1.7 1.4 1.9 2.1 2.3 2.8 2.6 2.6 2.6 2.7 2.1 2.3 2.2 2.2 1.9 2.0 2.1 2.5 2.3 1.8 1.8 1.7 1.5 1.6 1.5 1.3 1.3 1.2 .9 1.2
1.1 1.3 1.0 1.2 1.0 1.3 1.7 1.5 1.8 1.8 2.3 2.3 2.4 2.0 2.2 2.0 2.5 2.2 2.2 2.2 2.3 2.3 2.3 2.4 2.2 1.9 1.9 1.8 1.8 2.1 1.8 1.5 1.6 1.2 1.3 1.2
.8 .6 .6 .5 .5 .5 1.0 1.0 .8 .8 1.2 2.4 1.3 1.1 .8 .8 1.5 1.8 2.0 2.2 2.0 2.7 3.0 3.1 2.8 2.4 3.0 2.8 2.5 2.1 2.3 2.4 1.7 1.4 1.3 .7
.2 .5 .6 .4 1.5 1.4 1.5 2.1 2.1 1.4 2.1 2.2 1.0 .6 .8 1.4 2.3 3.4 4.4 4.6 5.1 5.3 4.1 3.6 4.1 4.2 4.0 3.9 3.9 3.8 2.7 2.0 .0

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures
Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoy.

Area monitored :10°N - 80°N, 85°W - 0°W

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :All hours combined.

Elements monitored :Mean sea-level pressure (hPa)
:Wind speed (m s^{-1})
:Wind direction (degrees)

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. A positive bias indicates the observation is veered to the background

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors

GROSS ERROR LIMITS :15 hPa (pressure)
:25 m s^{-1} (Vector Wind)

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
25552	71.6	-18.9	ALL	MSLP	SUR	84	0	0	1.0	-0.5	1.1
25565	58.0	-49.8	ALL	MSLP	SUR	637	0	0	1.9	0.1	1.9
41518	31.4	-69.7	ALL	MSLP	SUR	147	0	0	1.1	0.3	1.1
41519	32.5	-69.3	ALL	MSLP	SUR	167	4	2	1.7	0.3	1.7
41526	32.5	-66.9	ALL	MSLP	SUR	161	0	0	1.2	0.2	1.2
41527	29.7	-68.1	ALL	MSLP	SUR	83	0	0	1.1	0.2	1.1
41529	29.8	-70.0	ALL	MSLP	SUR	85	0	0	1.0	0.2	1.0
41530	31.6	-68.1	ALL	MSLP	SUR	146	0	0	1.8	-0.1	1.8
41581	32.8	-68.6	ALL	MSLP	SUR	172	0	0	1.9	1.7	2.5
41582	31.1	-67.6	ALL	MSLP	SUR	42	25	60	6.6	-4.7	8.1
41585	29.5	-69.4	ALL	MSLP	SUR	91	0	0	2.1	0.1	2.1
41587	29.6	-69.4	ALL	MSLP	SUR	81	0	0	1.0	-11.1	11.1
41590	30.8	-67.2	ALL	MSLP	SUR	73	0	0	1.0	-10.9	10.9
41591	31.9	-67.0	ALL	MSLP	SUR	163	5	3	1.4	-10.6	10.7
41594	32.2	-70.1	ALL	MSLP	SUR	148	0	0	0.9	0.3	1.0
41595	30.6	-70.7	ALL	MSLP	SUR	166	0	0	1.0	0.5	1.1
44546	34.4	-51.1	ALL	MSLP	SUR	289	0	0	1.1	1.9	2.2
44547	41.0	-44.9	ALL	MSLP	SUR	324	0	0	1.4	-1.0	1.7
44548	35.6	-57.3	ALL	MSLP	SUR	286	0	0	1.4	-0.9	1.7
44613	51.3	-31.5	ALL	MSLP	SUR	1332	1	0	1.1	0.3	1.2
44616	58.4	-34.6	ALL	MSLP	SUR	1726	3	0	1.6	0.8	1.8
44624	46.0	-14.1	ALL	MSLP	SUR	201	0	0	1.6	0.1	1.6
44726	53.9	-10.4	ALL	MSLP	SUR	174	0	0	1.2	0.6	1.4
44728	57.8	-38.2	ALL	MSLP	SUR	1528	3	0	1.9	-0.1	1.9
44742	62.4	-33.3	ALL	MSLP	SUR	1918	1	0	1.8	-0.2	1.8
44760	32.8	-32.4	ALL	MSLP	SUR	570	0	0	1.0	0.1	1.0
44763	57.4	-47.1	ALL	MSLP	SUR	1319	3	0	2.2	-0.1	2.2
44765	59.3	-32.6	ALL	MSLP	SUR	240	1	0	2.6	-0.2	2.6
44769	53.7	-33.2	ALL	MSLP	SUR	1597	3	0	1.3	0.2	1.3
44770	34.4	-42.8	ALL	MSLP	SUR	798	1	0	0.9	0.0	0.9
44773	53.7	-39.5	ALL	MSLP	SUR	926	55	6	1.6	0.1	1.6
44777	32.3	-37.4	ALL	MSLP	SUR	499	0	0	0.8	0.3	0.8
44780	54.8	-11.2	ALL	MSLP	SUR	1466	0	0	0.9	0.0	0.9
61541	35.2	-3.4	ALL	MSLP	SUR	12	0	0	0.8	-10.0	10.1
62511	46.8	-12.0	ALL	MSLP	SUR	534	5	1	1.1	1.0	1.5
62517	45.8	-23.4	ALL	MSLP	SUR	556	0	0	1.2	0.4	1.2
62518	43.6	-15.1	ALL	MSLP	SUR	546	0	0	1.0	0.3	1.0
62519	47.7	-18.0	ALL	MSLP	SUR	382	0	0	1.5	0.0	1.5
62524	28.2	-51.2	ALL	MSLP	SUR	732	4	1	1.1	0.7	1.3
63661	78.0	-4.1	ALL	MSLP	SUR	888	0	0	0.9	-0.4	1.0
64575	65.2	-27.3	ALL	MSLP	SUR	473	12	3	0.9	0.4	1.0
64577	60.6	-8.5	ALL	MSLP	SUR	449	0	0	0.8	0.1	0.8
65562	63.5	-18.0	ALL	MSLP	SUR	1578	0	0	1.3	-0.1	1.3
65581	58.0	-42.0	ALL	MSLP	SUR	1513	4	0	2.1	-0.5	2.2
65594	63.5	-33.4	ALL	MSLP	SUR	1912	2	0	1.7	0.1	1.7
WIND SPEED											
41518	31.4	-69.7	ALL	SPEED	SUR	125	1	1	2.5	-2.3	3.4
41526	32.5	-66.9	ALL	SPEED	SUR	133	0	0	3.1	-2.0	3.7
41529	29.8	-70.0	ALL	SPEED	SUR	84	0	0	1.6	-1.2	2.0
41530	31.6	-68.1	ALL	SPEED	SUR	13	0	0	5.3	-1.0	5.4
41585	29.5	-69.4	ALL	SPEED	SUR	81	0	0	2.0	0.9	2.2
41594	32.2	-70.1	ALL	SPEED	SUR	14	0	0	5.1	-2.0	5.5
41595	30.6	-70.7	ALL	SPEED	SUR	15	0	0	4.0	0.2	4.0
44613	51.3	-31.5	ALL	SPEED	SUR	931	1	0	2.2	-0.3	2.2
44616	58.4	-34.6	ALL	SPEED	SUR	511	0	0	5.6	-10.7	12.1
44742	62.4	-33.3	ALL	SPEED	SUR	1399	1	0	3.1	-1.4	3.4
62518	43.6	-15.1	ALL	SPEED	SUR	536	0	0	1.4	0.5	1.5

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION											
41518	31.4	-69.7	ALL	DIRN.	SUR	62	1	2	103.2	72.3	126.0
41526	32.5	-66.9	ALL	DIRN.	SUR	62	0	0	29.8	14.3	33.1
41529	29.8	-70.0	ALL	DIRN.	SUR	22	0	0	34.3	50.8	61.3
41530	31.6	-68.1	ALL	DIRN.	SUR	13	0	0	133.4	70.6	150.9
41585	29.5	-69.4	ALL	DIRN.	SUR	41	0	0	89.7	-4.7	89.8
41594	32.2	-70.1	ALL	DIRN.	SUR	14	0	0	124.7	71.4	143.7
41595	30.6	-70.7	ALL	DIRN.	SUR	15	0	0	134.0	50.7	143.3
44613	51.3	-31.5	ALL	DIRN.	SUR	792	1	0	25.8	14.3	29.5
44616	58.4	-34.6	ALL	DIRN.	SUR	425	0	0	81.2	75.5	110.9
44742	62.4	-33.3	ALL	DIRN.	SUR	1114	1	0	32.9	20.9	39.0
62518	43.6	-15.1	ALL	DIRN.	SUR	460	0	0	15.1	3.0	15.4

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures:

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

- :N REP. :Number of observations received excluding duplicates.
- :PG :Percentage of observations with gross errors.
- :PR :Percentage of observations rejected by quality control including rejections from the duplicate check.
- :PC :Percentage of observations with calm winds.
- :RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
- :BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	2777	0	2	1.8	-0.1	2787	0	2	0	7.9	1.3
AAN	80	0	1	1.3	-0.5	79	0	4	0	9.0	0.0
ACA	1030	0	1	2.1	-0.1	1060	0	1	0	7.6	1.4
ACU	25	4	0	1.5	-0.8	25	0	0	0	8.2	1.9
AEA	139	22	100	5.0	2.7	136	0	15	0	10.4	0.2
AEL	317	1	3	1.7	-0.3	321	0	3	0	7.8	1.0
AFL	285	0	100	2.9	1.5	289	0	6	0	10.6	0.8
AFR	721	0	8	1.8	-0.1	730	0	8	1	8.1	1.0
AIC	25	0	0	2.1	0.6	28	0	7	0	7.9	0.4
AIH	93	2	3	1.4	0.1	94	0	1	0	7.4	1.8
AME	26	0	12	1.6	0.0	26	0	12	0	7.6	-1.2
AMT	48	8	6	2.2	0.8	53	0	13	0	14.7	0.0
AMX	81	2	1	1.4	-0.2	82	0	4	0	8.4	1.0
ANZ	149	0	3	2.2	-0.7	153	0	6	1	11.1	0.8
AOM	216	0	2	1.8	0.9	223	0	3	0	9.0	2.0
AUA	40	3	3	1.3	0.1	40	0	3	0	6.9	1.1
AVA	117	0	3	1.7	0.0	117	0	3	0	7.7	1.0
AZA	411	0	2	2.0	0.3	415	0	2	0	8.6	0.7
BAL	226	1	15	1.5	-0.1	232	0	15	0	8.1	0.7
BAW	1290	0	2	1.8	-0.1	1317	0	3	0	7.4	1.2
BBB	37	3	14	1.6	-0.6	37	0	19	0	6.9	1.6
BWA	100	1	0	1.8	1.2	108	1	6	1	10.5	1.2
CDN	698	0	1	1.9	0.3	700	0	2	0	7.8	1.5
CFG	488	0	1	2.0	-1.0	490	0	2	0	8.2	0.5
CKS	21	14	5	3.2	-0.6	23	0	9	0	13.2	0.6
CKT	70	1	6	1.5	0.2	69	0	4	0	5.8	0.7
CLI	203	0	3	2.1	0.1	203	0	1	0	6.9	2.0
CLX	52	0	0	2.1	-0.9	52	0	0	0	8.4	1.8
CMM	212	0	12	1.9	0.2	219	0	13	0	7.3	1.6
COA	302	1	3	1.6	0.6	296	0	2	0	8.4	0.7
CRL	138	1	1	1.9	0.9	140	0	2	0	9.7	1.4
CTM	63	2	14	2.6	-1.4	64	0	16	0	9.4	0.7
CUB	161	1	63	2.1	1.4	163	0	100	0	10.5	2.6
DAF	21	0	5	2.5	0.6	21	0	0	0	8.8	-1.2
DAL	2647	0	2	1.9	0.4	2655	0	2	0	8.4	1.0
DHL	438	3	100	3.8	-1.5	444	0	2	0	8.6	0.1
DLH	2121	0	8	2.2	0.4	2173	0	10	2	7.4	0.9
DOA	174	1	17	2.0	0.6	176	0	16	0	8.1	1.5
ELY	91	0	5	1.7	0.2	92	0	9	0	7.6	0.8
FDX	426	1	3	1.9	0.5	444	0	3	0	8.7	1.0
FIN	396	1	2	2.1	0.2	397	0	5	1	9.6	1.8
GAF	139	1	2	2.4	0.4	142	0	3	1	7.6	1.6
HLA	33	0	6	2.0	-0.5	37	0	8	0	12.4	3.0
HLF	56	0	4	2.0	-0.6	57	0	7	0	8.2	0.4
IBE	977	1	17	1.7	0.4	983	0	18	0	9.2	0.7
ICE	427	0	1	1.9	0.1	426	0	3	1	7.8	1.0
KAC	24	0	8	2.2	0.3	26	0	4	0	9.6	1.3
KLM	1723	0	2	2.0	0.3	1756	0	2	0	7.4	1.2
LAZ	24	0	0	1.7	0.1	27	0	0	0	7.8	2.1
LDA	93	1	11	2.1	-0.9	92	0	12	0	8.7	0.4
LDI	96	1	2	2.0	-1.2	96	0	3	0	9.3	0.8
LIB	88	0	6	2.1	0.4	90	0	9	0	9.9	0.9
LOT	361	0	1	2.1	-0.2	361	0	2	0	8.3	0.9
LTU	424	1	5	1.7	0.3	422	0	6	0	8.6	0.9
MPH	486	1	1	2.0	-0.5	489	0	1	0	7.7	0.8
NWA	2298	0	1	2.1	0.9	2347	0	2	1	8.5	1.0
OAL	49	4	6	2.0	0.4	51	0	4	0	8.9	2.9
RAF	22	0	0	1.4	0.0	22	0	5	0	10.2	2.1
RIA	61	0	64	3.2	2.5	63	0	13	0	15.1	3.8

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RJA	58	0	2	2.1	0.7	59	0	0	0	9.5	2.1
ROT	23	4	9	2.2	-0.3	23	0	0	0	7.7	0.7
ROY	61	2	11	4.3	-0.7	63	0	2	0	7.1	0.9
RRR	227	0	25	2.4	-1.0	237	0	28	0	12.2	1.5
SAB	50	0	0	1.1	0.2	52	0	0	0	5.8	1.5
SAS	1064	0	1	2.1	-0.4	1070	0	2	1	8.5	1.3
SIA	82	0	4	2.1	-1.1	87	0	5	1	10.2	0.5
SPP	76	1	11	1.7	-0.3	76	0	13	0	8.8	0.8
SVA	213	0	7	1.9	0.2	237	0	9	0	8.0	0.3
SWR	107	0	5	1.9	0.0	115	0	3	0	8.3	2.6
TAP	362	1	10	1.7	-0.1	359	0	11	0	8.3	1.3
TEJ	71	0	17	1.3	0.5	71	0	17	0	7.3	0.5
TOW	103	0	0	1.5	-0.7	100	0	0	0	7.6	0.9
TSC	190	2	5	2.1	0.6	194	0	4	0	8.2	1.5
TWA	1207	0	2	1.9	0.0	1206	0	3	1	8.2	1.2
UAL	2017	0	2	2.2	-0.8	2041	0	2	0	8.2	1.1
ULE	99	0	3	1.7	0.0	100	0	4	0	8.8	0.2
UPS	499	0	16	1.8	0.0	519	0	16	0	8.2	1.0
USA	148	1	4	1.7	-0.3	146	0	3	0	8.3	0.4
VIA	109	1	1	1.9	0.7	110	0	1	0	6.9	0.6
VIR	144	1	0	1.4	-0.3	145	0	1	0	7.3	2.5
WOA	70	9	11	1.7	0.1	70	0	11	0	10.0	3.1
BA	8956	0	17	1.6	0.5	8954	0	24	0	7.4	1.4
KL	4474	0	28	1.8	0.8	4473	0	35	0	7.3	1.6
LH	298	0	18	1.7	0.2	298	0	17	0	7.0	1.2
M	103	1	100	3.7	1.1	108	0	100	0	11.8	2.6
N	378	3	6	2.5	0.7	383	0	5	1	9.8	1.0

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	1	0	0.0	11.0	11.0
DBLK	00	Z	100	1	0	0.0	40.0	40.0
DBLK	12	Z	100	5	0	21.1	36.0	29.2
EHK	00	Z	100	1	0	0.0	32.0	32.0
EHOA	12	Z	100	18	0	12.1	18.4	13.8
FNOU	00	Z	100	19	0	33.8	36.4	13.4
FNOU	12	Z	100	17	0	20.3	22.8	10.4
FNPH	00	Z	100	11	0	19.0	19.1	-1.5
FNPH	12	Z	100	10	0	19.9	23.1	-11.7
FNRS	00	Z	100	17	0	15.4	15.4	-0.2
FNRS	12	Z	100	17	0	10.6	16.8	-13.1
GACA	00	Z	100	27	0	14.5	16.0	6.8
GACA	12	Z	100	26	0	10.7	10.9	-2.0
JGQH	00	Z	100	1	0	0.0	18.0	18.0
LDWR	00	Z	100	30	0	12.8	16.3	10.2
LDWR	12	Z	100	28	0	11.6	12.2	3.9
OXVH2	00	Z	100	18	0	15.3	15.6	2.7
OXVH2	12	Z	100	20	0	16.3	19.6	10.9
OXYH2	00	Z	100	18	0	15.8	20.5	13.1
OXYH2	12	Z	100	21	0	20.9	23.5	10.8
SHIP	00	Z	100	6	0	16.4	16.8	3.8
SHIP	12	Z	100	5	0	21.5	55.3	51.0
SHIPS	00	Z	100	11	0	15.4	25.7	20.5
SHIPS	12	Z	100	15	0	15.2	46.9	44.3
V2G	00	Z	100	1	0	0.0	17.0	17.0
V2GH	00	Z	100	18	0	16.8	16.9	-0.9
V2GH	12	Z	100	15	0	23.9	27.0	12.7
V2LV	00	Z	100	25	0	19.2	20.0	5.6
V2LV	12	Z	100	23	0	20.7	21.3	5.2
V2LX	00	Z	100	17	0	19.1	21.3	9.4
V2LX	12	Z	100	20	0	20.2	20.2	-1.6
WTEA	00	Z	100	2	0	22.0	23.4	8.0
03953	00	Z	100	29	0	13.1	22.7	18.6
03953	12	Z	100	27	0	14.2	14.8	4.3
04018	00	Z	100	29	0	19.1	23.7	14.1
04018	12	Z	100	28	0	16.1	22.6	15.8
04220	00	Z	100	30	0	14.5	24.7	20.1
04220	12	Z	100	30	0	11.8	20.1	16.3
04270	00	Z	100	30	0	17.3	18.5	6.6
04270	12	Z	100	28	0	22.3	22.4	-2.4
04339	00	Z	100	30	0	10.4	22.8	20.3
04339	12	Z	100	30	0	12.1	16.1	10.6
04360	00	Z	100	30	0	19.5	22.5	11.3
04360	12	Z	100	29	0	15.8	18.7	10.1
08001	00	Z	100	27	0	16.7	20.5	11.9
08001	12	Z	100	28	0	16.8	18.1	6.9
08508	00	Z	100	29	0	12.2	12.3	-1.0
08508	12	Z	100	30	0	13.1	18.1	-12.5
08594	00	Z	100	1	0	0.0	11.0	11.0
08594	12	Z	100	27	0	11.5	13.1	6.4
60020	00	Z	100	30	0	20.1	27.3	18.5
60020	12	Z	100	30	0	14.2	15.0	4.6
71600	00	Z	100	27	0	16.4	21.4	13.8
71600	12	Z	100	24	0	15.8	15.8	-0.1
72201	00	Z	100	23	0	28.9	30.6	10.0
72201	12	Z	100	26	0	25.6	31.7	18.8
72402	00	Z	100	19	0	41.4	48.7	25.7
72402	12	Z	100	16	0	24.0	66.5	62.1
74494	00	Z	100	22	0	23.9	24.2	-3.5
74494	12	Z	100	24	0	27.5	46.0	36.9

```
 WMO   OBS                   NUM    NUM
IDENT TIME  ELM   LEV    OBS   GROSS      SD     RMS    BIAS

78016  00    Z    100    19       0      27.3   32.0   -16.7
78016  12    Z    100    18       0      14.1   14.2     1.4
```

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	1	0	0.0	3.0	3.0
DBLK	00	Z	500	1	0	0.0	23.0	23.0
DBLK	12	Z	500	6	0	9.4	10.7	5.0
EHK	00	Z	500	1	0	0.0	29.0	29.0
EHOA	12	Z	500	19	0	8.4	21.0	19.3
FNOU	00	Z	500	20	0	20.9	20.9	1.9
FNOU	12	Z	500	18	0	6.1	8.0	5.1
FNPH	00	Z	500	16	0	9.6	12.0	-7.2
FNPH	12	Z	500	16	0	9.8	13.4	-9.1
FNRS	00	Z	500	18	0	9.5	9.5	1.1
FNRS	12	Z	500	18	0	6.8	7.0	-1.6
GACA	00	Z	500	27	0	7.9	8.6	3.5
GACA	12	Z	500	26	0	8.8	9.7	4.2
JGQH	00	Z	500	1	0	0.0	9.0	9.0
LDWR	00	Z	500	30	0	9.8	11.0	5.0
LDWR	12	Z	500	28	0	10.6	10.7	-1.6
OXVH2	00	Z	500	20	0	18.4	18.7	-3.1
OXVH2	12	Z	500	20	0	19.5	19.9	-3.8
OXYH2	00	Z	500	20	0	13.7	13.7	0.4
OXYH2	12	Z	500	21	0	12.8	14.0	-5.6
SHIP	00	Z	500	6	0	16.0	16.1	-1.7
SHIP	12	Z	500	5	0	6.4	13.4	11.8
SHIPS	00	Z	500	16	0	7.9	13.2	10.6
SHIPS	12	Z	500	14	0	14.8	15.7	5.4
V2G	00	Z	500	1	0	0.0	9.0	9.0
V2GH	00	Z	500	18	0	13.0	13.1	-1.6
V2GH	12	Z	500	16	0	11.9	13.0	5.1
V2LV	00	Z	500	28	0	18.9	19.7	5.5
V2LV	12	Z	500	24	0	9.8	9.9	-1.3
V2LX	00	Z	500	19	0	12.1	14.9	8.7
V2LX	12	Z	500	23	0	12.7	13.6	5.0
WTEA	00	Z	500	2	0	6.0	24.7	-24.0
XX01	00	Z	500	1	0	0.0	18.0	-18.0
03953	00	Z	500	30	0	6.8	8.4	4.8
03953	12	Z	500	29	0	11.9	12.1	2.4
04018	00	Z	500	30	0	13.5	15.0	6.6
04018	12	Z	500	29	0	13.3	14.5	5.7
04220	00	Z	500	29	0	12.4	13.6	-5.6
04220	12	Z	500	30	0	9.3	9.8	-3.2
04270	00	Z	500	30	0	15.6	15.6	0.0
04270	12	Z	500	30	0	15.2	15.9	-4.9
04339	00	Z	500	30	0	15.3	15.3	1.3
04339	12	Z	500	30	0	14.6	14.6	-0.5
04360	00	Z	500	30	0	14.6	14.6	-1.4
04360	12	Z	500	29	0	12.5	13.3	-4.5
08001	00	Z	500	29	0	13.7	14.5	4.9
08001	12	Z	500	30	0	14.0	14.1	-1.3
08508	00	Z	500	30	0	10.7	14.2	9.4
08508	12	Z	500	30	0	8.6	9.0	2.7
08594	00	Z	500	1	0	0.0	0.0	0.0
08594	12	Z	500	28	0	6.8	11.1	8.8
60020	00	Z	500	30	0	12.5	21.8	17.8
60020	12	Z	500	30	0	9.9	15.4	11.8
71600	00	Z	500	27	0	9.5	11.6	6.7
71600	12	Z	500	24	0	6.9	9.1	5.9
72201	00	Z	500	26	0	18.1	19.7	7.8
72201	12	Z	500	26	0	7.6	10.6	7.5
72402	00	Z	500	21	0	12.5	18.4	13.5
72402	12	Z	500	18	0	11.6	19.2	15.3
74494	00	Z	500	23	0	12.6	12.9	2.7

```
 WMO  OBS              NUM    NUM
IDENT TIME ELM   LEV   OBS   GROSS     SD    RMS    BIAS


74494  12   Z    500   25      0     18.5   19.1     4.4
78016  00   Z    500   19      0     10.9   12.4     5.9
78016  12   Z    500   18      0      7.8   11.1     7.9
```

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in $m\ s^{-1}$
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	1	0	0	0.0	9.9	3.2
DBLK	00	V	100	1	0	0	4.7	-0.5	-0.8
DBLK	12	V	100	5	0	0	1.9	0.1	-0.7
EHK	00	V	100	1	0	0	2.1	-1.8	-1.0
EHOA	12	V	100	17	0	0	2.1	-1.1	1.5
FNOU	00	V	100	19	0	0	3.7	0.2	-0.7
FNOU	12	V	100	17	0	0	2.9	0.0	-0.6
FNPH	00	V	100	12	0	0	3.2	0.6	1.1
FNPH	12	V	100	8	0	0	3.4	0.0	2.6
FNRS	00	V	100	16	0	0	3.4	0.3	-0.1
FNRS	12	V	100	16	1	5	3.7	-1.4	-3.8
GACA	00	V	100	27	0	0	2.2	-0.6	-0.1
GACA	12	V	100	26	0	0	2.0	-1.5	0.4
JGQH	00	V	100	1	0	0	2.2	-0.8	0.1
LDWR	00	V	100	30	0	0	6.0	0.1	-0.1
LDWR	12	V	100	28	0	0	1.9	0.3	-1.3
OXVH2	00	V	100	17	0	0	1.8	0.5	0.5
OXVH2	12	V	100	18	0	0	3.0	-0.7	0.1
OXYH2	00	V	100	18	0	0	1.6	-0.2	0.5
OXYH2	12	V	100	21	0	0	2.1	-0.6	-0.4
SHIP	00	V	100	4	0	0	2.2	-1.6	0.5
SHIP	12	V	100	1	0	0	2.2	-2.4	0.1
SHIPS	00	V	100	7	0	0	2.2	1.9	-0.2
SHIPS	12	V	100	9	0	0	2.2	-0.5	0.3
V2G	00	V	100	1	0	0	2.2	-4.1	-3.0
V2GH	00	V	100	18	0	0	2.2	1.1	0.6
V2GH	12	V	100	14	0	0	3.8	-2.5	-1.4
V2LV	00	V	100	25	0	0	2.7	-0.6	-0.5
V2LV	12	V	100	23	0	0	2.7	-0.7	-0.3
V2LX	00	V	100	14	0	0	2.5	0.4	0.8
V2LX	12	V	100	19	0	0	3.4	-0.2	1.6
WTEA	00	V	100	2	0	0	4.2	-3.1	0.5
03953	00	V	100	29	0	0	1.9	0.1	0.5
03953	12	V	100	27	0	0	2.3	-1.3	0.2
04018	00	V	100	29	0	0	2.7	0.3	0.4
04018	12	V	100	27	0	0	2.9	-0.1	-0.7
04220	00	V	100	30	0	0	2.6	0.5	0.8
04220	12	V	100	30	0	0	2.4	-0.6	0.7
04270	00	V	100	30	0	0	2.1	0.2	1.1
04270	12	V	100	28	0	0	4.2	-1.4	0.6
04339	00	V	100	29	0	0	1.7	0.1	-0.1
04339	12	V	100	29	0	0	2.5	0.7	-0.8
04360	00	V	100	30	0	0	2.4	0.0	0.6
04360	12	V	100	29	0	0	2.6	-0.7	-0.2
08001	00	V	100	27	0	0	3.9	0.5	0.7
08001	12	V	100	28	0	0	2.3	-0.7	0.8
08508	00	V	100	29	0	0	3.0	0.7	-0.1
08508	12	V	100	30	0	0	2.6	-0.6	-0.9
08594	00	V	100	1	0	0	2.4	-2.7	3.0
08594	12	V	100	27	0	0	2.4	0.1	-0.1
60020	00	V	100	29	0	0	4.0	1.2	1.5
60020	12	V	100	30	0	0	3.4	-0.5	-0.3
71600	00	V	100	27	0	0	8.9	-0.4	-1.2
71600	12	V	100	24	0	0	3.2	-0.1	-0.3
72201	00	V	100	23	0	0	2.2	0.9	-0.2
72201	12	V	100	25	0	0	2.8	-1.2	-0.9
72402	00	V	100	17	0	0	2.6	-0.7	0.2
72402	12	V	100	14	0	0	3.9	-0.9	-1.4
74494	00	V	100	22	0	0	6.0	-0.8	-0.3

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
74494	12	V	100	23	0	0	2.3	-1.4	-0.3
78016	00	V	100	18	0	0	4.8	-0.4	-1.5
78016	12	V	100	18	0	0	1.8	-1.8	-0.4

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:September, 95

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	1	0	0	0.0	8.7	-3.0
DBLK	00	V	500	1	0	0	3.0	-1.5	1.4
DBLK	12	V	500	6	0	0	3.7	-1.1	-0.5
EHK	00	V	500	1	0	0	4.0	0.1	-4.2
EHOA	12	V	500	19	0	0	4.0	-1.9	-0.8
FNOU	00	V	500	20	0	0	3.3	-0.3	-1.2
FNOU	12	V	500	18	0	0	3.4	-1.6	-0.3
FNPH	00	V	500	16	0	0	3.3	0.3	-0.3
FNPH	12	V	500	15	0	0	2.0	0.0	0.0
FNRS	00	V	500	16	0	0	3.5	1.4	0.2
FNRS	12	V	500	18	0	5	3.5	-2.6	-1.9
GACA	00	V	500	27	0	0	5.2	0.6	-0.4
GACA	12	V	500	26	0	0	3.3	-0.3	0.4
JGQH	00	V	500	1	0	0	3.2	-0.8	-0.9
LDWR	00	V	500	30	0	0	3.3	0.6	-0.8
LDWR	12	V	500	28	0	0	2.5	-0.5	1.0
OXVH2	00	V	500	20	0	0	3.4	-0.2	-0.8
OXVH2	12	V	500	20	0	0	3.4	-1.4	0.5
OXYH2	00	V	500	20	0	0	4.6	0.5	-0.1
OXYH2	12	V	500	21	0	0	4.2	0.8	-0.2
SHIP	00	V	500	5	0	0	4.1	-1.6	-0.2
SHIP	12	V	500	4	0	25	4.1	-5.2	4.8
SHIPS	00	V	500	15	0	20	4.1	7.6	-3.0
SHIPS	12	V	500	13	0	30	10.4	-7.1	3.7
V2G	00	V	500	1	0	0	6.0	-6.0	2.6
V2GH	00	V	500	18	0	0	6.0	0.7	0.8
V2GH	12	V	500	15	0	0	3.7	-1.6	-1.2
V2LV	00	V	500	27	0	0	3.1	1.0	0.2
V2LV	12	V	500	24	0	0	2.5	-0.9	1.0
V2LX	00	V	500	16	0	0	2.4	2.2	-0.2
V2LX	12	V	500	20	0	0	2.5	-0.1	1.3
WTEA	00	V	500	2	0	0	2.4	0.8	-0.3
XX01	00	V	500	1	0	0	2.5	2.8	-0.4
03953	00	V	500	30	0	0	3.3	0.1	0.2
03953	12	V	500	29	0	0	3.0	-0.5	-1.4
04018	00	V	500	29	0	0	3.5	1.3	-0.3
04018	12	V	500	27	0	0	3.7	0.1	0.6
04220	00	V	500	29	0	0	3.1	-0.5	1.4
04220	12	V	500	30	0	0	4.0	0.6	0.1
04270	00	V	500	30	0	0	4.3	0.9	-1.0
04270	12	V	500	30	0	0	3.7	0.4	0.9
04339	00	V	500	30	0	0	3.9	-0.1	-0.1
04339	12	V	500	29	0	0	2.9	1.6	0.7
04360	00	V	500	30	0	0	3.4	0.2	0.4
04360	12	V	500	29	0	0	3.0	-0.9	0.4
08001	00	V	500	28	0	0	3.6	0.6	-0.2
08001	12	V	500	30	0	0	3.8	-1.0	-0.7
08508	00	V	500	30	0	0	3.6	-0.2	0.3
08508	12	V	500	30	0	0	2.2	-0.6	-0.1
08594	00	V	500	1	0	0	2.3	-5.3	5.0
08594	12	V	500	28	0	0	2.3	-1.2	-0.1
60020	00	V	500	30	0	0	4.8	1.3	-0.2
60020	12	V	500	30	0	0	3.0	-1.4	0.4
71600	00	V	500	27	0	0	9.0	-0.2	0.6
71600	12	V	500	24	0	0	2.7	0.1	0.0
72201	00	V	500	26	0	0	3.3	0.1	-1.1
72201	12	V	500	26	0	0	2.7	0.3	-0.3
72402	00	V	500	20	0	0	2.3	0.9	-0.1
72402	12	V	500	16	0	0	2.2	0.1	1.6
74494	00	V	500	23	0	0	9.5	-0.7	0.5

```
WMO   OBS                NUM    NUM      %
IDENT TIME ELM   LEV  OBS    GROSS   REJ     RMS    UBIAS   VBIAS

74494  12   V    500   25       0      0     2.2    -1.4     0.5
78016  00   V    500   19       0      0     3.4     0.3     1.5
78016  12   V    500   18       0      0     3.0    -0.3     0.2
```

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5,10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45